A

HISTORY

OF

THE AGGREGATES,

OR

CLUSTER-HEADED PLANTS:

COMPREHENDING

THE ENTIRE **GENERA** OF

SCABIOUS,	GLOBULARIA,	BRUNIA,
DIPSACUS,	ARCTOPUS,	JASIONE,
XANTHIUM,	ECHINOPHORA,	ALLIONIA,
DORSTENIA,	GUNDELIA,	ASTRANTIA,
GINSENG,	ECHINOPS,	KNAUTIA,
HYDROCOTYLE,	LAGOECIA,	AND
STATICE,	STOEBE,	ERYNGIUM;

AND ALL THE **SPECIES** OF EACH, KNOWN TO THIS DAY.

Their DESCRIPTIONS, CHARACTERS, VIRTUES, and USES;

Their PLACE OF GROWTH, TIME OF FLOWERING, STATURE, DURATION, COLOURS, and other Particularities:

And a FIGURE of every PLANT, drawn and engraved from NATURE.

WITH

OBSERVATIONS

On a NATURAL METHOD, ſo far as it regards the Connection of the Claſſes;
On the Production and Propagation of MULISH or INTERMEDIATE PLANTS;
And on certain PLANTS which are common to England and America.

By JOHN HILL, M.D.
MEMBER OF THE IMPERIAL ACADEMY.

LONDON:
Printed for the AUTHOR in St. James's-Street:
And Sold by R. BALDWIN in Pater-Noſter-Row; J. RIDLEY in St. James's-Street;
J. NOURSE, T. BECKET, P. ELMSLY, and J. CAMBELL, in the Strand; and
J. BALFOUR, at Edinburgh.
M.DCC.LXXII.

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M,DCC,LXXII.

HERBS,

WITH

Many FLOWERS assembled in a COMMON CUP,

Having the CHIVES distinct.

AGGREGATES.

CHARACTER of the CLASS.

PLANTS with many perfect FLOWERS, forming a Head or Ball; surrounded by a common CUP; each FLOWER having also its own distinct CUP, and simple FOOTSTALK.

CHAP. I.

Of the Place of AGGREGATE PLANTS in an artificial, and a natural Method.

IT will be necessary to explain very distinctly the marks of this Class; and the construction of that head, or ball of Flowers, which constitutes its character: not only to establish with certainty its proper form; but to distinguish it precisely from the four Classes with assembled Florets which have gone before, and that of the umbrella'd or umbelliferous Plants, which follows. Those four agree in one great character, of having many Florets collected together to form one Flower: The umbelliferous Class is distinguished from them, by having each Flower, though little, perfect and entire, and placed alone upon its separate Footstalk.

IT would seem as if these last had no connection with, or relation to the former; but thus far the natural and artificial methods agree, for these Classes in both (with the intervention of this) properly follow one another; and nature never loses the progression.

IT is true there is no immediate connection between the four Classes of Plants, whose general Flower is composed of many assembled Florets, and the Class of umbelliferous or umbrella'd Plants; but this is placed between them: This gives that connection which they want with one another, and with this, they regularly constitute six succeeding arrangements of Plants; each truly separate in its character, yet all united by their plain relation.

THIS is not a place for entering at large upon the course of nature in the Vegetable chain; that will be shewn when we shall come to the detail of Plants in a natural method; in which

there

there will be no diſtinction of Series or Order, Claſs or Genus there; but every Plant will follow that which it next exceeds, in ſome mark of certainty. The two methods are, and muſt be, diſtinct in their manner, as they are in their purpoſe: here we ſeek to know Plants; there we ſhall ſtudy, being known, to arrange them; here we are to look for general diſtinctions, there we are to obliterate them; we can only know things by diſtinction; and we can only underſtand them by connection. The marks of Claſſes and of Genera, are arbitrary and artificial; nature knows no difference but of Species, from Species. Theſe diſtinctions are vague and temporary, but her connections certain and eternal.

Two Genera differ by ſome arbitrary character; and it is by this diſtinction that we know the Plants which belong to each: but when we know them we can place them better; for we may then find natural relations eaſily; and we ſhall certainly give them the preference to artificial Characters. Theſe doctrines, ſtrange to the minds of many who are filled with modern ſyſtems, it may be needful to explain by inſtances.

THE great Swede obſerves, that in many Plants the Chives cohere lengthwiſe, ſo as to form a tube; and he makes this the character of an artificial Claſs: this Character is found in Plants the moſt unlike in nature: It is in the *Violet*, and in the *Sun Flower*. The Claſs was ingeniouſly deviſed, and this mark anſwers its purpoſe; for by obſerving this tube of Chives in the Violet, the ſtudent is taught to look for it in the Syngeneſious Claſs; and by the ſubſequent diſtinctions of Orders and Genera, in that excellent writer, he will ſoon find to what genus and what name it belongs.

A MAN who had never ſeen a Violet, would thus plainly and eaſily be led to know the Plant; but he muſt be a poor philoſopher if he would reſt contented with that knowledge; and he muſt entertain very limited, and very humble notions of ſcience, if he would call this knowledge, Botany. 'Tis true that ſo far only artificial ſyſtems carry him: they have taught him to know the Plant with certainty; but he will eaſily perceive it has another place in nature: its general form does not agree with that of the Sun-Flower; nor will he be led to expect in it the ſame VIRTUES.

PERHAPS it will be thought the Violet is placed with leſs violence to nature, here, in our artificial method; but it was not to court that praiſe the Plant is mentioned. There may be a thouſand artificial methods deviſed; and though that will be certainly beſt, which, with equal diſtinctneſs, comes the neareſt nature, yet none of them are to be valued for more than they intend, nor preſerved longer than they are wanted. They give the knowledge of individuals, and upon that, all other knowledge muſt be founded; therefore there cannot be too much care or labour employed in forming them: but when they have ſerved their purpoſe, let them be rejected. Though particular knowledge is uſeful, it is general knowledge that is great: and when the ſtructure ſhall be raiſed, let no one wonder we throw down the ſcaffold.

ACCEPT favourably, candid reader, ſo much on this great ſubject of a natural method. We would have you entertain a juſt as well as great idea of this ſcience; and by always having this ſuperior light in view, you will perceive it more and more diſcloſe itſelf upon you; you will advance in one, as you purſue the other. The Claſs of Aggregates, whoſe rank in this our artificial ſyſtem, is very near the real place the Plants will have in nature, affords a plain and uſeful inſtance; it will encourage you perhaps, to purſue the track where the connection is much more obſcured by neceſſary diſtinctions.

CHAP.

CHAP. II.

Of the true CHARACTERS of the AGGREGATE, and the UMBRELLA'D PLANTS.

IT has been always ſeen, that the *Aſſembled Florets* and the *Umbrella'd Cluſter* had a ſtrong connection; though ſomething very diſſonant in form divided them: 'Tis thus truth will flaſh at times upon the human mind, even where its conſtant light cannot ſhine freely. The relation in this caſe has been known, though the connection was not diſcovered; and that could not be till this Claſs of Aggregates was formed.

IT has been ſaid, that if the Florets of a Tubulate Flower, as *Tanzy*, were all raiſed upon long Footſtalks, it would become an Umbell, from a Cluſter; this was a bold and not an injudicious thought; but it would fail in many things: for, 1. The true eſſence of an Umbell, though perhaps that has not been enough conſidered, conſiſts in the Flowers being perfect, and their *Footſtalks* being ſubdivided. Unleſs each Flower has its Cup, it loſes its perfect nature, and becomes a Floret; and unleſs there be a *general* and a *partial* diviſion of Footſtalks, there is no Umbell. What has been called, by an error in terms, a *Simple Umbell*, is no more than an *Aggregate* with *long Footſtalks*. The *Aſtrantia* and *Statice*, though hitherto placed in remote Claſſes, differ in this reſpect no otherwiſe than by a ſomewhat greater length of Footſtalk to each Flower in one than in the other. More or leſs, longer or ſhorter, make no diſtinction between Species and Species; much leſs between Claſs and Claſs: and it is no matter that the greateſt names give ſanction to ſuch Umbells. The modern ſyſtems have no ſuch Claſs as Aggregates; for the received method does not admit of their diſtinctions as a character; but in truth and nature, Scabious has as much right as Aſtrantia to be called an Umbelliferous Plant.

IN the ſecond place, if we could have got over this difficulty, and admitted ſimple Umbells, yet the Tubulate Florets would not have made an Umbell, for they have no Cups.

THE proper character implied by any term, muſt be eſtabliſhed juſtly before we can ſpeak with that preciſion which is required by ſcience of any relation to it, or correſpondence with it. This being regarded, and the diſtinctive ſtructure of aſſembled Florets, and of the Umbell known, we may not only ſee the general truth that there is a relation between the Plants with aſſembled Florets, and the Umbelliferous; but we ſhall find alſo that there is a connecting link between them.

AN Umbelliferous or Umbrella'd Plant, has the Footſtalks of many Flowers ariſing from one point, and again ſubdivided in the ſame manner; the ſecond like the firſt diviſion, riſing from one point again: there is naturally an Involucrum at the baſe of each of theſe two diviſions; and every Flower is perfect, having its own cups.

Now it is eaſy to ſee that Tubulate Florets, if raiſed on Footſtalks, would not make an Umbell; for, 1. There would be no ſubdiviſion or ſecond riſing of Footſtalks from a point; 2. There would never be any ſecond Involucrum, nor any thing in the place of it, although the general Cup might take the place of the firſt; and, 3. Theſe would be Florets ſtill, not perfect Flowers, as the Umbrella'd Plant ſhould have; for they would have no ſeparate Cups.

BUT though this advance from the Aſſembled Tubulate Flower to the Umbell, cannot be made without a threefold violation of that unaltered and unchangeable law of nature, which admits no gap in her gradations; there is yet a method of connection to be found: and this Claſs of Aggregate Plants affords it.

LET it be underſtood that in the method of nature, the deſtruction of Claſſes will be effected always by intermediate Claſſes, as that of Genera will be by intermediate Plants. The connection which deſtroys two Claſſes by uniting them, is to be made by a Claſs which is truly intermediate; that is, which has part of the characters of the one, and part of thoſe of the other. Thus the Aggregate Claſs, properly and perfectly formed, having part of the Tubulate character, and part of the Umbelliferous, ſerves as a link or connecting joint between them: being thus diſpoſed, it deſtroys two other Claſſes, which before were perfectly diſtinct; by uniting them, and itſelf the intermediate Claſs with them, into one greater arrangement: this will be again united with preceding and ſucceeding Claſſes by like means; till the whole Vegetable world is ſeen as one great and perfectly regular aſſemblage of Individuals, gradually riſing one above the other.

WHEN the character of the Aggregate Claſs is explained and aſcertained as diſtinctly as that of the Umbrella'd, we ſhall not only perfectly underſtand the one, but, by the ſame means, as diſtinctly know the other; and having before, with equal care, known the true characters of Aſſembled Florets, we ſhall ſee the prōgreſs of Nature from thoſe Aſſemblages of imperfect Florets, through the ſimply-cluſtered perfect Aggregate Flowers, to the more ſeparated Umbelliferous: and thus know thoroughly, that moſt complex part of Vegetable Nature.

AN Aggregate Plant has many Floſcules collected into a head, ſurrounded by a Common Cup; in theſe two particulars, it agrees with not only the Tubulate Flowers, but with the Radiate, Ligulate, and Aſſociate, that is with all the four firſt claſſes; but it has *Flowers*, not *Florets*, to conſtitute this head; and each Flower has its *ſeparate* and *diſtinct Cup*; and in theſe two particulars, of equal weight with the former, it agrees with the Umbelliferous Plants.

HERE then are two articles of agreement with any one of theſe Claſſes, and two with the other. The Aggregate is therefore perfectly ſeparate from both; and is placed at an exact diſtance between them. It muſt be allowed then to be that connecting Link, which was wanting to unite the four firſt Claſſes in our method, with the ſixth; loſing in that greater view, its own diſtinctive character, while, by uniting, it deſtroys alſo theirs; and thus far opening a way into a true natural method.

IT is uſeful to know this perfectly, not only with that higher purpoſe, but for the leſſer uſes alſo of an artificial method: for without theſe objects of the natural gradation, the characters of this artificial diſtinction would never be ſo deeply fixed in the ſtudent's memory; nor are they ſo perfectly neceſſary in any other place; ſince, for want of a preciſe determination of them, or of an accurate attention to them, this very natural Claſs has been ſtrangely torn and divided; and a great many Plants truly belonging to it, have been thrown into others. Thus the Eryngium and Aſtrantia, the Hydrocotyle and Echinophora, have been called Umbelliferous Plants, though wanting the true and only diſtinctive character of that alſo natural Claſs; and perfectly agreeing in every article of the diſtinctions of this. The common Thriſt might as juſtly be called an Umbelliferous Plant as any of theſe; and by a very little lengthening of the Footſtalks of its ſeparate Flowers, would be as well entitled to the character as any of them. But neither are they Umbelliferous Plants, according to the true character of that perfectly natural arrangement; neither could Thrift, by lengthening the Footſtalks of its Flowers, be made one; if that were the caſe, the union of the ſix Claſſes would not exiſt; and nature would be more like art by far; than God has made her.

THE connection between the four aſſembled Claſſes and the Umbelliferous, is not to be ſought from the Tubulate kind, as we have ſeen, for there want three of the four grada-

tions; and therefore the Plants, which ſhould in that way connect the two Claſſes, are not at equal diſtance from both: but taking the Aggregate, we ſee the exact proportion. The Aſſociate Claſs alſo makes an advance between the three firſt, and this fifth. Its Floret opening into longer ſegments, and its Chives, though they ſtand near, not being united.

THE length of Footſtalk to the Flower, though an accidental and uncertain mark, yet is the ſtriking and obvious character by which the Aggregates differ from the Aſſociates one way, and from the Umbelliferous Plants the other: let us ſee the conſequence of giving more or leſs to this part.

SHORTEN the Footſtalks of the ſeparate Flowers of an Aggregate, and it will reſemble an aſſociate; lengthen them, and it will reſemble an Umbrella'd Plant: but in the one caſe, it will not be an Aſſociate, for each Flower will ſtill have its diſtinct Cup; and in the other it will not be an Umbelliferous Plant, for there will be no ſecond diviſion of the Footſtalks. It will thus be, even in an artificial ſyſtem, juſt what we have ſhewn it truly is in nature; it will reſemble the two Claſſes, but it can be of neither; it is ſeparate from both, and at equal diſtance between them: It is therefore the thing we ſought; the true connecting Claſs: its diſtinctions from both are certain, evident, and invariable; and while we thus trace its place in Nature, it fixes the true Characters of thoſe ſeveral Claſſes diſtinctly in our minds.

THE Claſs of Aggregates thus formed, and thus diſtinctively characteriſed, admits into its limits many Plants, which have before been arranged under different Claſſes; but it excludes none that have ever been numbered among thoſe related to any of its branches.

THE ſeveral Genera which it comprehends might be found capable of various diſtributions; but to us the moſt obvious, always will appear the beſt. Among thoſe who are fond of ſeeking deep for Characters, the thickneſs, the ſlightneſs, or the abſolute want of a Receptacle, or the length, the ſhortneſs, or total deficience of Footſtalks to the ſeparate Flowers, might ſerve as Characters of Orders, Sections and Subdiviſions; but the one of theſe methods requires the tearing the head to pieces, and the other the cutting it aſunder, to know the diſtinctions. We profeſs a diſlike to theſe torturings of Nature, and to all Characters which the eye does not at once diſtinguiſh; but if it were otherwiſe, theſe far ſought and deep laid Characters of difference, would be rejected here as indeterminate, and therefore uſeleſs.

As to the Receptacle, it conſiſts of two ſkins with a ſpungy matter between. Its thickneſs or ſlightneſs are only terms of more and leſs, not marks of true diſtinction, neither is it ever totally abſent. It is very great in Teaſell, it is ſcarce to be ſeen at all in Thrift, yet both theſe have it; and all Aggregates have it. The Stalk terminates in a head, ſurrounded by a Cup, within which, riſe the ſeparate Flowers. This Cup is formed of the outer Rind of the Stalk. The inner Rind and Blea terminate juſt within it in a kind of Button: this Button is the Receptacle, and from this the Flowers riſe. In ſome, as in Scabious, the outer part of the Blea, riſing up looſe and light, forms a kind of ſpungy matter between the two parts; in others, there is ſcarce any thing of this, as in the Thrift, yet even here there is ſome; and the Structure is the ſame always.

IN reſpect of the Footſtalks of the ſeparate Flowers, they are in ſome ſhort, which is uſually where the Receptacle is thick, and in others longer, where that part is thinner; what would otherwiſe make the thickneſs of the Receptacle running up into theſe Footſtalks; but the difference of longer or ſhorter, is, like the former, only a mark of more or leſs, and can have no place in true diſtinction.

THE

THE Receptacle in theſe Plants is therefore of no importance; and all that truly relate to the Footſtalks of the Flowers as diſtinctive, is that they are always ſimple and undivided: whether they are long, ſhort, or ſeem wanting, is of no importance; but if they were divided, it would indeed be of conſequence, for it would remove the Plant out of the Claſs, placing it among the Umbelliferous kinds.

IT is needful that a Claſs comprehending ſo large a number of Plants, ſhould have its Orders or Subdiviſions. Theſe we ſhall take, as in other inſtances, from differences which are obvious, in parts open to the eye; and dependent not on degree, but abſolute form.

ALL Aggregate Plants have the general Cup leafy in ſome degree; therefore no accurate diſtinction can be made from that; but every Flower having its ſeparate Cup; and theſe differing eſſentially in their form, compoſition, and diviſion, and being always preſent while the Plant is in Flower, and very evident and open to the ſight, the Characters of our neceſſary Subdiviſions or Orders, may be properly taken from them.

THAT the form, ſtructure, and compoſition of the head of an Aggregate Plant, may be perfectly laid before the eye, we have repreſented it in the firſt eight Figures, Pl. 1. in two very different Plants, the Scabious and the Teaſell. In the one of theſe, the Scabious, Fig. 1, 2, 2, 4. the compoſition is very evident, and the parts all large and proportioned in the uſual way; the Receptacle riſing but a little, and the ſeparate Cups of the Flower being very obvious: in the other, the Teaſell, Fig. 5, 6, 7, 8. the Receptacle ſwells to ſo immoderate a length, and the Chaffs which are placed between the Flowers, confuſe the view ſo much, that the eye of a ſtudent might be at firſt ſight perplexed. However, when the regular form of the Scabious head is firſt known, the length of the Receptacle in the other will be conſidered only as a difference of degree, not of kind; and the Chaffs between the Flowers in theſe heads, being of no importance to the Claſſic Character, will give no confuſion. The cautious eye being thus informed in one inſtance, the moſt diſſimilar in aſpect of all that can occur, will find no difficulty in any other. Let it only be remembered on this and all other occaſions, that the greater alliances of Plants, as Claſſes, take in only their greateſt Characters, not all of them: the reſt remain for a variety of ſubordinate diſtinctions of Order, Genus, and Species. Thus the Chaffs of the Receptacle here neglected in the Claſſic Character, are ſo obvious as to make part of a very diſtinct Generic mark; and ſo it will be found of all the others. If we received all into the Character of Claſſes, theſe would ſhrink from their uſe and nature, and we ſhould have only Genera.

THIS premiſed, that the whole ſcheme of diſtribution may be familiar, let us lead the ſtudent by the hand, from a view of the exterior form, to the compoſition and conſtruction of the Aggregate Head thus inſtanced, at Pl. 1. Fig. 1. he ſees the Scabious Head entire, as it ſhews itſelf upon the Plant while growing, he perceives this is a Cluſter of Flowers *a*. ſurrounded by a Common Cup *b*. and thus conceives diſtinctly enough the general idea.

LET him blow theſe aſunder with his breath, or part them with his finger, and he immediately ſees, as at Fig. 2. that every one of theſe leſſer Flowers is perfect in itſelf; he perceives that each has its own Cup, Fig. 2. *a*. that the Body of it, 2. *b*. no where joins, or is connected with any other, and that the union of ſuch a number of them into one head, reſults only from their riſing from one Receptacle or Swoln Top of the Stalk, 2. *c*. and being encloſed in one great Cup.

LET him proceed farther, by tearing off ſome of the Flowers, and he will lay bare the Receptacle in part, as at Fig. 3. *a*. and let him afterwards, if he pleaſe, cut open the Head perpendicularly, and he will ſee that this Receptacle is as repreſented at Fig. 4. *a*. nothing more than the Swoln Crown or head of the Stalk.

THIS

CHARACTERS of the Clafs of Aggregates.

1

The head of Scabious entire.

5 6

The head of Teasell entire.

2

The head of Scabious parted.

4

The Scabious head cut open.

7 8

The head of Teasell cut open.

3

The Scabious head laid naked.

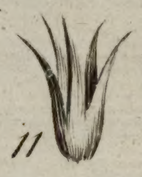
The seven Orders of the Aggregate Clafs.

9

An even Cup.

10

A folded Cup.



11

A simple Cup.

12

A double Cup.

13

A Til'd Cup.

14

A Cup of one leaf.

15

A Cup of many leaves.

16

Teasell with it's Flower.

17

Thrift with it's Flower.

18

Globewort with it's Flower.

19

Scabious with it's Flower.

20

Globe-thistle with it's Flower.

21

Bird-weed with it's Flower.

22

Threadwort with it's Flower.

THIS Diſſection is not needful to his underſtanding the Character of the Claſs, for he knew it was an Aggregate, when he ſaw at Fig. 2. the ſeparate Cups of the Flowers; but it will prevent doubt, that the Head of Teaſell, or any ſuch Plant, aſſumed a different nature for being extended in length. He will ſee that the exterior form of Teaſell at 5 and 6, do not more perfectly agree with thoſe of Scabious, at 1 and 2, than the inner conſtruction at 7 and 8, with the inner ſtructure of Scabious at 4.

THE Claſſical form being now perfectly underſtood, we may proceed to the ſubordinate Diſtinctions of Orders.

THOUGH the Common or General Cup of the Aggregate Claſs is alike or nearly alike in many, there are great differences in the ſeparate Cups of the diſtinct Flowers. Theſe differences are ſufficiently obvious and certain, to give the Characters of abſolute diſtinction among the Plants, into a number of ſubdiviſions. In ſome, this particular or ſeparate Cup is hollow and plain; in others, it is folded; in others, it is ſimply cut down into one ſeries of Segments; in others, there are two or more ranges; and there are ſome, in which this ſeparate Cup, is only one hollow leaf; and others, where it is compoſed of ſeveral ſuch hollow Leaves.

THESE diſtinctions will give a fixed and certain diviſion of the Claſs, into no leſs than ſeven ſeparate Orders, which will greatly eaſe the ſearch after any particular Plant.

The Seven ORDERS of the AGGREGATE CLASS are theſe:

ORDER I.

PLANTS having an Aſſembled Head of Flowers with ſeparate Cups, in which this ſeparate Cup is of one piece entire, and *even* at the Edge or Brim. Pl. 1. Fig. 9.

ORDER II.

WHOSE particular Cup is entire, but *folded* at the Brim. Pl. 1. Fig. 10.

ORDER III.

WHOSE particular Cup is ſimple, or cut into a ſingle Series or Range of Segments. Pl. 1. Fig. 11.

ORDER IV.

Whoſe particular Cup is double, or has two Ranges of Segments. Pl. 1. Fig. 12.

ORDER V.

Whoſe particular Cup is til'd, or has ſeveral Ranges of theſe Segments. Pl. 1. Fig. 13.

ORDER VI.

WHOSE particular Cup is formed only of one hollowed oval Leaf. Plate 1. Fig. 14.

ORDER VII.

WHOSE particular Cup is formed of ſeveral oval hollowed Leaves. Pl. 1. Fig. 15.

IN the ſeven preceding inſtances, the Cups are figured alone, ſeparated from the Common Head, and diveſted of their Flowers; that the diſtinct form of each might be ſeen, without the incumbrance or confuſion of any other part. But that it may be alſo ſeen how they appear in complex Nature, they are repreſented in the ſucceeding Figures with the Flowers in them.

Fig. 16. gives an example of the *Even Cup* in the *Teaſell*, with its Flower.
Fig. 17. gives an example of the *Folded Cup* in the *Thrift*, with its Flower.
Fig. 18. of the ſimple Cup, in the Globewort, with its Flower.

Fig. 19. of the *Double Cup*, in the Scabious, with its Flower.
Fig. 20. of the *Til'd Cup*, in the Globe Thiſtle, with its Flower.
Fig. 21. of the *One-leav'd Cup*, in the Birdweed, with its Flower.
Fig. 22. of the *many-leav'd Cup*, in the Threadwort, with its Flower.

UNDER one or other of theſe Orders, may be arranged all the Aggregate Plants; for Nature, ſo far as yet known, has given no other differences in their particular Cups: yet it ſhould ſeem, that between the Plants of the ſixth and ſeventh Order, there will be at ſome time found whole Genera of intermediate Characters; for it is not uſual with Nature to leave chaſms in her works, or to paſs over great deficiencies in number of the parts. We are here, though in an artificial ſyſtem, tracing her ſteps, ſo far as may be in ſuch fetters, with an awful reverence.

WITH reſpect to the five firſt Orders, their differences ariſe in a way perfectly natural, and the four ſucceeding may be deduced plainly from the firſt, by a meaſured Scale, in the ſame method of gradual diviſion, by which Plants themſelves, in the true ſcale of nature, aſcend above one another by a meaſured addition of parts. The folded Cup is no more than the even one, with an exuberant edge; the ſimple Cup is only the folded one, cut down between the Plaits; the double Cup is the ſimple one, throwing off its outer Rind toward the baſe, in one ſeries; and the til'd Cup is only the double one, with Films ſplit off outward, in ſeveral ſeries.

THUS far we ſee the courſe of Nature's Diſtinctions evident to reaſon. Between theſe five, and the two following, there is the Diſtinction of a new tribe or family; though we have not encumbered the Student's mind with it in this place, becauſe the objects which come under it are few. The other Cups are all compoſed of Films, but thoſe of this and the ſucceeding Order are of Leaves. That this Tribe ſhould begin with a Cup of one Leaf, is moſt natural; and it would ſeem alſo natural that it ſhould aſcend by two-leav'd, three-leav'd, and by four-leav'd Cups, to the Order which ſtands next in our account, and which has five Leaves: but this is a reſearch for farther time: Its place will not come properly, till we have proceeded to theſe Plants in a natural method. There is much of the world yet to be ſearched; and there is much time for it. I have reaſons to conjecture that the Plants here ſuppoſed to exiſt, may be found far north; that tract of land will be now better ſearched, than has been heretofore; and gratitude demands this public teſtimony, that it is to the favour of the Hudſon's Bay Company alone, I owe the means of this new enquiry.

HERBS,

TEASEL. DIPSACUS

a
b
o

Generic Character.

Jagg'd Teasel.

a
b
2

a
b
1

Serrated Teasel.

H E R B S,

WITH

Many FLOWERS assembled in a COMMON CUP,

SERIES the SECOND;

With the CHIVES distinct.

CLASS IV.

AGGREGATES.

ORDER I.

With the particular Cup of each Flower of one piece, entire, and even at the Brim.

GENUS I.

TEASELL.

DIPSACUS.

Character of the Genus.

The Head is oval, and the general Cup is longer than the Flowers.

Plate 2. o. *a b b.*

1. SERRATED TEASELL.

FULLER's TEASELL.

Plate 2. Fig. 2.

Character of the Species.

Dipsacus Fullonum.

The Leaves are cut like a Saw along the edges, and unite at the Base.

Fig. 2. *a b.*

THIS is a Biennial, native of our ditch sides, and flowers in June, a Plant of six Feet high: The Stalk is pale, the Leaves are of a strong green, the Scales of the Head are reddish, and the Flowers are crimson.

NATURE has given in the Head of this Plant a mechanic instrument, a kind of Brush for dressing cloth. We cultivate it; and the Heads grow larger, and the ends of their Scales turn backward, and become more useful.

2. JAGGED TEASELL.

Plate 2. Fig. 1.

Character of the Species.

Dipsacus Laciniatus.

The Leaves are cut in deep Segments, but unite at their Base.

Fig. 1. *a b.*

THIS is a Biennial, native of France and Germany, and flowers in July. The Stalk is firm, upright, five feet high, and whitish. The Leaves are of a fresh and fine green; they grow together at their base, the Stalk running through them; so that they make a kind of bason for holding water. The Scales of the head are whitish; the Flowers are crimson.

GENUS II.

SHEPHERD's ROD.

VIRGA.

Character of the Genus.

The Head is round, and the general Cup is ſhorter than the Flowers.

Plate 3. o. *a b.*

Of this Genus we know but one Species.

ROUGH SHEPHERD's ROD.

SHEPHERD's ROD.

Plate 2.

Character of the Species.

Dipſacus Piloſus.

The Leaves have two Appendages or ſmall Leaves at their Baſe.

Plate 3. *a b.*

THIS is a Biennial, native of our waſte grounds, but not very common; a ſingular and pretty Plant, flowering in July and Auguſt. The Stalk is a yard high, rough to the touch, of a yellowiſh green, and ſpreads into wide branches. The Leaves are alſo of a yellowiſh green. The Scales of its buttony Heads are green. The Flowers are white. They cover the Head at once, making a complete white Ball, which appears fring'd all over with black; the Summits, which hang out beyond the Body of the Flower, being of that colour.

IT is frequent about Denham; we have it alſo in the neighbourhood of Woolwich; but I think not nearer London.

LET it not ſeem ſtrange that I have disjoined this Plant from the preceding. Though the generality of late, as well as earlier authors, have called it a Teaſell; Nature diſclaims the alliance, and ſome have ſeen it. Vaillant [a] has called it a Devilſbit, and referred it to the Scabious kinds; but ſtill the Plant is neither Teaſell nor Scabious, but a diſtinct Genus; and it is lucky that it has a diſtinct and known name, as it ſo much deſerves it. [b] Linnæus, excellent and accurate almoſt every where, acknowledges that Vaillant did not much amiſs in referring this Plant to the *Scabious*: but he would have not this alone, but all the Teaſells be referred alſo thither. I wiſh I could, with juſtice, ſpeak of his thought in this, as favourably as he of Vaillant's. To unite Genera in artificial methods, tends always to confuſion; and here it cannot be done without violation of Nature: the ſeparate Cups of the Flower in theſe Plants, is the great Character; and this in Teaſell is ſimple and entire; in Scabious, double and divided; they differ more than as Genera, they are of different Orders. Haller, obſervant always of Nature, calls in the Habit [c] againſt Vaillant, and the Scales between the Flowers; but there is a Scabious [d] which this more reſembles than it does the Teaſell, and many Aggregates have Chaffs between the Flowers. Both will, I hope, allow me the new Genus.

[a] Memoir. 238. [b] Hort. Cliffort. [c] Facies, p. 675. Enum. St. Helv.
[d] Scabioſa Syriaca, Plate 27. of this Volume. Page 32.

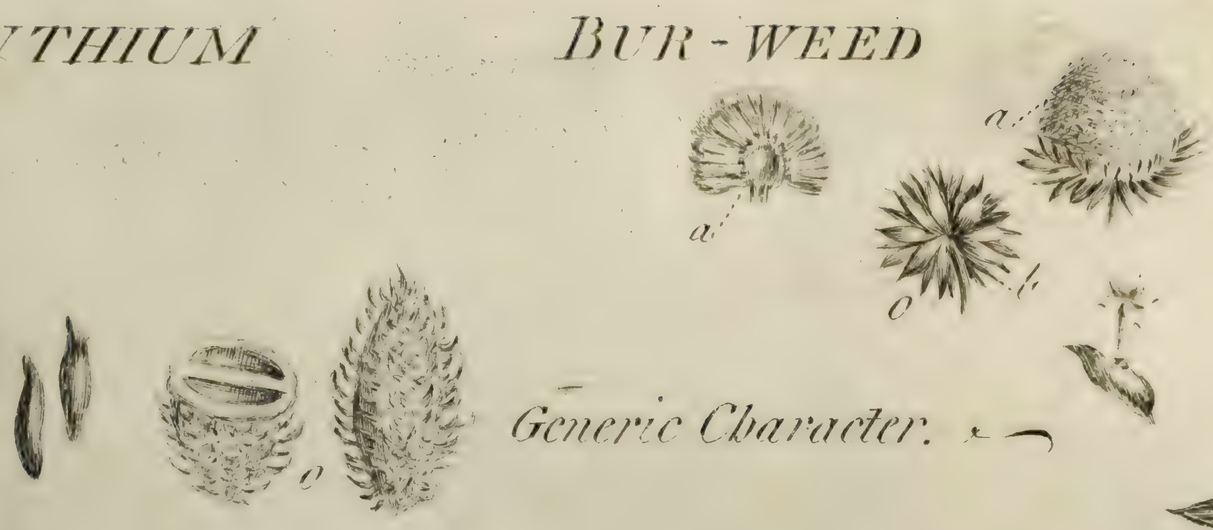
GENUS

Generic Character.

Rough Shepherds Rod?

1785.

XANTHIUM — BUR-WEED



Generic Character.

2 Unarmed Bur-weed

3 Oriental Bur-weed

1 Thorny Bur-weed

GENUS III.

BURWEED.

XANTHIUM.

Character of the Genus.

The Head is an obtuſe Cone; the general Cup is equal in length to the Flowers.

Plate 4. o. *a b.*

1. THORNY BURWEED.

Plate 4. Fig. 1.

Character of the Species. Xanthium Spinoſum.

The Leaves have no Footſtalks; and the Stalk is thorny.

Fig. 1. *a b.*

THIS is an Annual; native of Portugal, and flowers in June. It grows to two feet and a half high. The Stalk is pale; the Leaves are of a fine graſs green; the Thorns, which grow by three's near the Baſes of the Leaves, are brown. The Flowers are whitiſh, with a tinge of green; and the Fruit, which is rough, and grows on other parts of the Plant, is of a pale Olive colour.

2. UNARMED BURWEED.

Plate 4. Fig. 2.

LESSER BURDOCK.

Character of the Species. Xanthium Strumarium.

The Leaves have Footſtalks; and the Stalks have no Thorns.

Fig. 2. *a b.*

THIS is an Annual; native of our ditch banks, waſte grounds, and old dunghills, but not common. It riſes to a foot and a half high; and flowers from July to September: a rugged Plant of irregular growth, but with ſingularity enough to ſupply the place of beauty. The Stalk is of dirty red, ſpotted with black; or a very deep gloomy purple. The Leaves are of a faint green. The Flowers are pale and whitiſh. There are, beſide theſe, diſtinct Fruits or Seed Veſſels, on different parts of the plant. The Seed Veſſels are the part which occaſioned its being called Burr, and Little Burdock, for they are covered with a kind of hooked Spines.

IT is ſaid this Plant will cure the Evil: And one may be led to ſuppoſe there are valuable qualities in it, becauſe Nature has given it in a manner to the whole world: a circumſtance that occurs in very few Plants; indeed, with reſpect to America, in ſo few, that it has been thought Europe, and that vaſt country, had none in common.

THIS is a problem ſo much conteſted; and the preſent inſtance decides it ſo fairly, that it may not be amiſs to enter upon it, ſomewhat at large, now we have ſo fair an occaſion.

AMERICA furniſhed us ſo many new Plants, and we received from thence ſo little that bore even a reſemblance to what we had before in Europe, that imagination, which always outruns judgment, and in its raſh haſte, generally concludes upon too ſlight premiſes, preſently declared there was no Plant common to the new world, as it is called, and the

old. We had been accuſtomed to receive very different Plants from different places, and therefore ſuppoſed they produced only different; and when we thought this of Europe and of Aſia, we might very well believe it of America, even in reſpect of all the world. But it ſhould have been conſidered, that different countries might produce the ſame Plants with our own, though we had not received them; and there was the more reaſon to ſuppoſe this, becauſe as ſingularity pointed out among many new things which ſhould be collected, what was leaſt like our own, was moſt likely to be firſt regarded.

FARTHER reſearches have ſhewn, that howſoever different the climate may be in Europe and in Aſia, yet there are Plants common to both. I have received this Xanthium from China; and Linnæus declares it native of Ceylon, and of Japan. The Common Engliſh Water Lilly, both the white and yellow, grow alſo in the Eaſt Indies; and the Common Arrowhead, is as frequent in Sumatra as in England. It is ſo with many other Water-Plants; but not with all, nor is it limited to theſe: there is much more to be yet aſſerted concerning theſe; but let the truth, which is a ſtranger, diſplay itſelf by juſt degrees.

IT ſhould ſeem in the firſt place, that there are a certain number of univerſal Plants, which grow in every kingdom; and are Vegetables of the Globe, not of this or that quarter of it.

WE ſhall find moſt of theſe to be the Plants, whoſe ſituation renders the power of Elements almoſt equal in whatever part they grow. The greater number of them are inhabitants of high mountains and deep waters; here the temper of the air is leſs altered by the climate, and we therefore may leſs wonder at ſeeing the ſame Plants: but all that are common to ſo remote regions, and ſo different climates, are not the natives of theſe peculiar places. The Xanthium, our preſent ſubject, grows upon the rubbiſh about Canton, as freely as at Nottingham; nor is this a ſingle inſtance.

THERE is a certain tract about the North Pole, wherein for the whole circuit, the ſame Plants are found; perhaps it is the ſame about the South Pole, but the country is unknown. As it is hard to ſay how far North America extends, or what are the limits where it joins, if it does join, with other northern countries; we are accuſtomed to call the extream northern world, by a name deduced from its place, and to give one term to the extent of kingdoms this way, to whatever others they belong; calling them the Polar Countries. If we examine the Vegetable products of theſe countries, we ſhall find them nearly the ſame in all; and in a certain latitude, that difference between America and European Plants, which has been fancied ſo abſolute, ceaſes entirely.

THE Plants of the extream North, ſo far as we know, are all the ſame; all low; and all of what are uſually called the imperfect Kinds: From this Northern tract, where the circuit of the Globe is confined in very narrow limits, they ſeem to have extended every way, and to have encreaſed in parts, and ſtature.

THERE will be a place in the courſe of this work, to examine that encreaſe; and ſee how much of it is owing to heat and other cauſes: for when we ſhall come to treat Plants in the method of Nature, it is from this northern point, and this moſt ſimple ſtate, we are to trace them: A few ſhort obſervations only can be admitted here, to lead the way to a belief of that moſt certain fact, that America and the other parts of the world, have ſome Plants in common.

IN the Latitude of 83, which is as far as men have ſailed, we find Moſſes only; the Conferva in the waters; the Ulva in the boggs; the Coralloide Moſſes on dry land; theſe

theſe are the ſimpleſt of all Plants; and theſe only are found at that extream North diſtance, whatever be the country.

I HAVE not had the opportunities for an exact reſearch, which are now offered, nor indeed has any; but what I know from faithful correſpondents hitherto, is this.

IN the Latitude of 82, which is but a very ſmall advance from that moſt Northern part juſt mentioned, are found Strawberries. They are found every where round the Pole at this diſtance.

BUT this is not all; there are many other Plants which take in larger circles, at more diſtance, and yet are equally, and as certainly univerſal. The common Violet is found on the coaſts of Baffins Bay, in Greenland, in Nova Zembla, and in Muſcovitic Tartary, in the Latitude of 76. This is a Circle, in all Parts of which, I doubt not, Violets are found, as we ſee them in ſo many places there, and thoſe ſo diſtant.

I HAVE received our common Mouſe-Ear from Cumberland Iſle, from Greenland, Lapland, North Cape, and Siberia; upon examination, all theſe places lie in the Latitude 73; and it is hence reaſonable to conclude, that this Plant is alſo univerſal at that diſtance from the Pole.

FARTHER than this, my opportunities of perſonal enquiry have not enabled me to determine; but even upon this foundation, that the Plants are univerſal from 73 degrees to the Pole, we might be very reaſonably led to doubt the propoſition, that any one quarter of the Globe was altogether without thoſe common to another.

WHY ſhould it be thought ſtrange a Plant ſhould travel by its Seeds from 73 degrees to 50? We know the great opportunities there are of conveyance by winds and ſea; we are ſenſible that the quantity of Seeds produced by Plants is ſo great, that if out of ten thouſand, one only ſhall live, the Plant will be preſerved, and propagate itſelf where that ſhall fall.

IT is not needful we ſhould ſuppoſe a ſudden flight of the Seeds of any Plant of 23 degrees: let us conſider the length of time there has been for this migration; let us take into the conſideration alſo, the nature of the Plant, and it will appear ſo far from wonderful, that Mouſe-Ear ſhould be found both in Europe and America, that there will be required almoſt a miracle to prevent it. From Cumberland Iſle and Greenland, the courſe is almoſt due South; and we very well know, there are not wanting North winds, in that part of the world, to forward it. The Plant Mouſe-Ear, produces Seeds altogether innumerable; they are very minute, and they are winged with ſuch a quantity of Down, that they will float in the air a long time, even in a calm. They may then be carried very far by winds; and the Plant is ſo hardy, that no ſoil prevents its growth; rocks, abſolute naked rocks, receive the Seed, and are often covered at vaſt heights, and in an amazing manner, by the Plant. What then prevents its propagating itſelf gradually Southward to a certain Latitude; and from the Northern Countries, ſpreading itſelf, not only to Newfoundland, but thence alſo to Penſylvania, Virginia, and Carolina?

THOUGH it will grow in extreme cold, we know that is not neceſſary to it, becauſe it grows in England, and other parts of Europe: nay it thrives better here; for in the very cold Countries juſt mentioned, it never exceeds three inches in height, whereas with us, it will be five or ſix.

To confirm this opinion farther, Mouſe-Ear is found in Newfoundland, and in ſome other parts of our Colonies; it would be raſh to have judged from this alone, that it was native

native there; for the Seeds of many common Paſture Plants, may have gone from hence with Graſs Seed, which our Planters often have from us; but the finding the Plant there, and the ſeeing by what a natural and eaſy courſe it may have come thither, from the more Northern Countries, not from Europe, together, amount to as good proof as reaſon can expect in ſuch a caſe.

IF it be aſked, why, on the ſame principle, many more Plants are not alſo found native in North America and Europe? the anſwer is eaſy. This is not the only one; but many are not to be expected on this plan. The extreme North does not produce a very great number; and of theſe, few have the advantages of light Seeds and natural hardineſs, that we find in Mouſe-Ear.

ANOTHER obſervation will naturally occur here to the Reader; that the northern Plants are, ſo far as hitherto named, extremely ſhort or low: it is ſo univerſally, ſo far as I have ſeen: and height in Vegetables ſeems certainly, though not univerſally, to encreaſe with the Sun's power. The Moſſes of 83 degrees Latitude, are the loweſt of all Plants; the Strawberries of eighty-two lie on the ground, yet are a little higher than thoſe Moſſes; the Violet of Baffins Bay is ſomewhat taller than the Strawberry; and the Mouſe-Ear of ſeventy-three, is, to all theſe, gigantick.

IT would be vain and abſurd, to ſuppoſe that all Plants followed this law of encreaſe exactly, for then the difference of ſoils and accidents could be allowed no power; and the Plants of every country would be all of one heighth: yet I muſt be permitted to ſay here, what will be proved in its due place by a great number of inſtances; that notwithſtanding the multitude of exceptions, there is ſuch a law; and that were all accidents equal, which they never are, or can be, the effects would be more viſible. The Mouſe-Ear, which is in a manner univerſal in ſeventy-three, grows to three inches high; the Jeruſalem Artichoak, which is native of 3 degrees, grows to 12 feet. We may trace in theſe extreme inſtances, the outlines of a proportional advance in growth, as in climate. The Jeruſalem Artichoak is 70 degrees more South; and it is ſeventy times as tall. The Hollyhock of Borneo, has the ſame heighth of twelve feet; and Mouſe-Ear its original three inches at the ſame diſtance North in Aſia, as America.

THESE are the Extreams, ſo far as I have found; he that would fill up the intermediate degrees, muſt find the Plants on which the climate acts with leaſt interruption; and he muſt meaſure theſe in places where they have their genuine ſtature. Nightſhade upon the Downs, is three inches in height; upon a Dunghill, it is a yard or more; but neither of theſe is the true, that is, the natural height of the Plant.

THERE will be an opportunity, in the courſe of this work, to examine theſe differences of the ſame Plant, and their cauſes: the principles of that enquiry are laid down in a preceding volume; only let the general idea of them have ſo much weight here, as to ſhew that a rule may be juſt, though liable to a million of exceptions.

THAT difference in the ſtature of a Plant, which we ſee can ariſe in the ſame place, from any one of many accidents, we muſt not be aſtoniſhed to find take place in very remote countries; nor muſt we bring this different height, when there is no other, as a reaſon to ſuppoſe two Plants not the ſame, which are the product of countries, ſuppoſed not to have any in common. The XANTHIUM, which is our preſent immediate ſubject, is one of Nature's univerſal Plants; more ſo indeed, than any of thoſe which take their little circles round the Pole. Beſide being found throughout Europe and Aſia, Africa affords it; and what is more to our immediate purpoſe here, America.

NOR is it limited to any one part of the new world any more than of the old; I have received it from *Quebeck*, from *Carolina*, from *St. Chriſtophers*, and from *Jamaica*; nor does the Plant in any of theſe places differ from the wild Engliſh kind, any other way than in ſtature and luxuriance of growth. With us the Plant is eighteen inches high; in Canada it grows to ſix feet: there is in the general aſpect, an appearance of difference, but, when examined, it vaniſhes.

THIS Xanthium, therefore, is a proof that there are Plants common to America, and to the other parts of the world; nor is it the only one by many. The queſtion ſo long diſputed, ſeems capable therefore of a tolerably fair deciſion.

UPON the whole, it ſeems that there are ſome Plants, though not many, which are common to Europe and to North America; and that there are many common to South America and Aſia.

WITH reſpect to the North American, there are beſide thoſe already named, a Conyza common to that country, and the Pyrenæan mountains, and ſome others. I had laſt year an opportunity of ſeeing, beyond conteſt, that ſome Moſſes, common on Hampſtead Heath, grow alſo in America. Mr. Gray, Seedſman, in Pall-Mall, received many Plants from thence, in a condition of growth, and their roots were covered with the Great Hypnum, the Bog Sphagnum, and two or three other kinds frequent there.

RASH obſervations might add vaſtly to the liſt of theſe Plants; for Plantain, Sorrell, and many other common things in our paſtures, are as frequent about our Plantations there: but the Seeds of theſe have doubtleſs been accidentally carried over from hence; and in this enquiry, great diſtinction is to be obſerved between ſuch Plants and the proper natives.

WITH reſpect to the products of South America, which are common to Aſia, there is alſo to be great caution uſed, to find out from their place and other accidents, which are native, and which have been in reality brought thither from Aſia: for we very well know that the firſt ſettlers in South America, were very intent on raiſing in the Weſt-Indies, the products of the Eaſt. However, if we leave out of the account, ſuch valuable articles, we ſhall find ſtill a great number, which men could never be intereſted to carry over, and which are in places far from ſettlements. The Coſtus of Ceylon, is found alſo in Surinam and the Braſils; the Canna is common to Coromandel and Jamaica; and Feuille's Alkekengi is equally common in Peru and Borneo.

WE ſee therefore by this enquiry, that no part of the world has altogether diſtinct Plants from all others. The Alpine Plants are common to the high mountains, and the underwater Plants to the deep Lakes of Europe, Aſia, Africa, and America. In theſe particular ſituations, the univerſality of Plants, is as evident as in the circles near the pole; and beſide thoſe we have already inſtanced, there will be found in the courſe of this work, ſeveral more American Plants, which, though underſtood to be diſtinct Species, are no more different than the Xanthium of Canada and England.

3. ORIENTAL BURWEED.

Plate 4. Fig. 3.

Character of the Species. Xanthium Orientale.

The Stalk is unarmed; wedged, and cut into three Lobes.

Fig. 3. *a b c.*

THIS is an Annual; native of Egypt, a Plant of two foot high, but of no beauty; flowering in Auguſt. The Stalk is pale, the Leaves are of a light freſh green; the Flowers are pale olive colour'd.

GENUS IV.

PINKWEED.

KNAUTIA.

Character of the Genus.

The Head is flat, and is compoſed only of five Flowers: the general Cup is entire, cylindrical; and cut into a few ſharp Segments at the Brim.

Plate 5. o. *a b.*

1. CRIMSON PINKWEED.

Plate 5. Fig. 1.

Character of the Species. Knautia Orientalis.

The Leaves are linear and wav'd; the Heads ſtand on ſimple Footſtalks.

Fig. 1. *a b.*

THIS is an Annual, native of the Greek Iſlands, and flowers in July. It is a ſlender twiggy Plant, of a yard in heighth; and of a very ſingular and not unpleaſing aſpect. The Stalk is of a dark green, and ſpreads towards the top in a wild, but pictureſque manner. The Leaves are of a freſh and ſhowy green; the Flowers are of a fine glowing crimſon. The ſeparate Flowers are ranged in ſo even and regular manner in the Head that the whole appears only as one Flower, not a little reſembling, at a diſtance, a common ſingle Pink; whence its Engliſh name.

2. AZURE PINKWEED.

Plate 5. Fig. 2.

Character of the Species. Knautia Occidentalis.

The Leaves are lanced and indented; the Heads ſtand on divided Footſtalks.

Fig. 2. *a b.*

THIS is a Biennial, native of Canada and other parts of North America; a very handſome Plant, flowering in Auguſt. The Stalk grows to two foot and a half high; it is ſlender, tough, of a ſtrong green, and very much branched. The Leaves are of a dark and coarſe green: the Flowers are of a perfectly fine blue. The Plant is little known in Europe, and does not ſucceed well with us in gardens. If the Seeds be ſown in Spring, they ſeldom come up; if in Autumn, the young Plants die in the Winter. I had it here at Bayſwater, in 1762, on one of my Sand Hills, from Seeds from Canada, ſown in Autumn, and care in ſheltering the Seedlings in hard weather. Pluckenet [c] ſeems to have named this, and, as I think, no other Author.

[c] Alm. 335.

PINKWEED.

KNAUTIA

Generic Character.

Crimson Pinkweed.

Azure Pinkweed?

a b

o b

Generic Character.

Heart leav'd Fair-weed.

Oval Fair-weed 2.

GENUS V.

FAIRWEED.

ALLIONIA.

Character of the Genus.

The Head is flatted, and compoſed only of three Flowers; the general Cup is entire and cylindrick; but cut into deep ſharp Segments at the Brim.

Plate 6. o. *a b.*

1. HEART-LEAV'D FAIRWEED.

Plate 6. Fig. 1.

Character of the Species. Allionia Violacea.

The Leaves are Heart-ſhaped; and the Cup is cut into five Segments.

THIS is an Annual, native of Portugal, and flowers in June; a very handſome Plant, and well entitled to its fair name; which is but its country name in another language. It riſes two feet and a half high. The Stalk is tender and branched. The Leaves are of a very fine Graſs green; and the Flowers are of a beautiful Violet blue.

2. OVAL FAIRWEED.

Plate 6. Fig. 2.

Character of the Species. Allionia Incarnata.

The Leaves are oval, with one half running farther down the Footſtalk than the other. The Cup is cut very deeply into five Segments.

Fig. 2. *a b.*

THIS is a Biennial, native of Spain; a Plant of two feet high; flowering in May and June. The Stalk is tough, and of a blueiſh colour. The Leaves are of a ſtrong blue-green. The Flowers are of a very delicate pale crimſon.

IT muſt be eaſily ſeen that this Genus approaches very nearly to the preceding; but they cannot be joined. Difference in degree, be it ever ſo great, can never conſtitute a juſt diſtinction; but difference in number, be it ever ſo little, ſo long as it is fixed and certain, may. There is alſo a mark of difference in the Seeds, but we do not ſend the Student ſo far; nor delay him ſo long for a genuine character: in Pinkweed, the Seeds are hairy at the top; in Fairweed, they are ſmooth. This is mentioned to confirm the propriety of keeping the two Genera diſtinct; but the obvious character in the Flowers is ſufficient to eſtabliſh it.

GENUS

GENUS VI.

FEVERWORT.

DORSTENIA.

Character of the Genus.

The Head is flat, and compoſed of many Flowers; the general Cup is entire, flat, and undivided at the Edge.

Plate 7. o. *a b.*

1. HEART-LEAV'D FEVERWORT.

Plate 7. Fig. 1.

Character of the Species. Dorſtenia Alexiteria.

The Leaves are Heart-ſhaped, ſharp pointed, and indented; and the Head is ſquared, and wav'd along the Edge.

Fig. 1. *a b.*

THIS is a Perennial, native of Campeachy; and flowers in May. A Plant of moſt extreme ſingularity, reſembling nothing in the whole Vegetable world, except two other Species of the ſame Genus; and of qualities as peculiar as its form. The Leaves are three or four inches long, and riſe ſeparately from the ground, with long ſlender Footſtalks. They are of a fine bright green; but the colour ſoon fades, and they become brown, and droop. The Stalk, which ſupports the Head, riſes naked and ſimple from the Root, and is ſlender, and ten inches high. At its top ſtands a flat head of Flowers, half buried in a ſpungy receptacle of a ſquare form, which fills the boſom of the Cup, and grows into one body with it. The colour of the Receptacle is pale; and the Flowers are of a whitiſh green. They are ſmall, one leaved, and incloſed in a little Cup, which grows to them, as the Cup does to the Receptacle; ſo that they are very difficultly ſeparated or examined. Hence has ariſen the difficulty of giving a true character of the Plant, by thoſe, whoſe ſyſtems made it neceſſary to introduce every part.

2. PINNATIFID FEVERWORT.

Plate 7. Fig. 2.

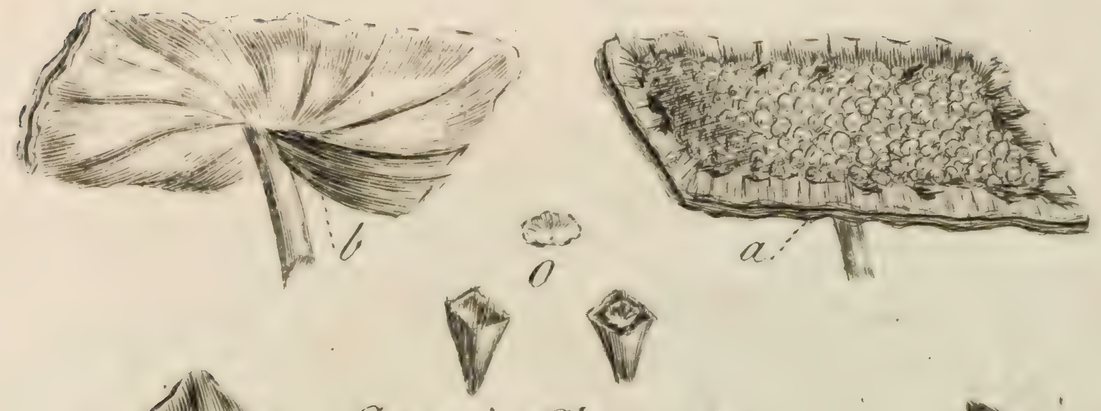
Character of the Species. Dorſtenia Drakena.

The Leaves are cut almoſt to the middle Rib, into a few Segments, with entire Edges; the Head is oval.

Fig. 2. *a b.*

THIS alſo is a Perennial, native of Vera Cruz, and other parts of the Spaniſh Weſt-Indies; a Plant not at all leſs ſingular than the preceding; and flowers in June. The Leaves are of a deep ſtrong green; they riſe ſingly from the ground, with long Footſtalks, to the height of about eight inches. The Stalk which ſupports the Head, is about ſeven inches high, naked and ſlender. The head is green, and the Flowers are of a greeniſh white.

3. FINGERED



Generic Character.

Pinnatifi'd Fevernvort.

Heart leav'd Fevernvort.

Finger'd Feverwort. Simple leav'd Feverwort.

3. FINGERED FEVERWORT.

Plate 8. Fig. 1.

Character of the Species. Dorſtenia Contrayerva.

The Leaves are pinnatifid, with a fingered aſpect, and the Segments are ſerrated: the Head is ſquare, and undivided at the Edge.

Fig. 1. *a b.*

THIS is a Perennial alſo, native of Peru, and flowers in May; a Plant agreeing in its manner of growth with the two preceding. The Leaves are eight or ten inches high; they grow ſingly from the ground, on long ſlender naked Footſtalks. They are of a faint green; and their Stalk and the middle Rib, are often brown or reddiſh. The Head is perfectly ſquare, flat, and undivided at the edge; it is of a green colour; and the Flowers are alſo of a greeniſh white. The Stalk, which ſupports this, is ſimple, naked, ſlender, and brown; and is about eight inches high.

THE root of this third kind, is the Contrayerva uſed by Apothecaries: and a much larger quantity than they employ, is conſumed in dying. The three Plants are ſo like, and the people who collect Drugs ſo negligent, that the Roots of them all are gathered under this name; as the Roots of three or more Plants, are uſed under the name of Virginian Snake-weed; or, as the Swiſs wound Herbs, conſiſt of every Plant they lay their hands upon.

4. SIMPLE LEAVED FEVERWORT.

Plate 8. Fig. 2.

Character of the Species. Dorſtenia Cauleſcens.

The Leaves are lanc'd; and the Heads are ſquare.

Fig. 2. *a b.*

THIS is a Perennial, native of Campeachy; where it grows on the moſt barren rocks, to the height of two or three feet: A Plant altogether unlike the three preceding in its general aſpect, but having the ſame wonderful kind of Head as they have.

THE Stalk is weak, reddiſh, and tough; and has but few Branches. The Leaves are broad, but of a lanced ſhape; and waved at the Edge. The Heads do not riſe on peculiar Stalks from the ground, as in the three preceding kinds, but one Stalk produces a great many: each is placed on a ſlender Footſtalk, growing from the boſom of a Leaf. The Heads are greeniſh, and the Flowers are whitiſh, but nearly of their own colour. It flowers in Auguſt.

NATURE ſeldom varies ſo extremely in the Species of the ſame Genus, as in this Plant; but the genuine character is ſo abſolute, and ſo wonderfully diſtinct from all others, that there can be no doubt about the joining them.

GENUS VII.

SHEEP ROT.

HYDROCOTYLE.

Character of the Genus.

The Head is rounded; the general Cup is compoſed of four ſharp pointed Leaves. The ſeparate Flowers are raiſed on ſhort and ſlender Footſtalks.

Plate 9. o. *a b c.*

1. FIVE FLOWERED SHEEP ROT.

Plate 9. Fig. 1.

Character of the Species.

Hydrocotyle Vulgaris.

The Head is compoſed only of five Flowers. The Leaves are round and crenated; and have their Footſtalks inſerted in their Centre.

Fig. 1. *a b.*

THIS is a Perennial, native of our boggy grounds; a very low and ſmall, but very ſingular Plant; flowering in June. The Stalk never riſes from the ground, but runs upon it, rooting at the joints, and is of a whitiſh green. The Leaves are of a freſh, though not ſtrong green; their Footſtalks are pale, and about an inch or little more in heighth. The Flowers are ſmall and white; the Heads ſtand upon very ſhort Footſtalks, riſing from the main Stalk, uſually together with a Leaf.

IT has been a cuſtom to range this with the Umbelliferous Plants, but its very aſpect might have ſhewn with how much violence to Nature. Here are no ſecond Involucrum, nor divided Footſtalks; and we have ſhewn there is no Simple Umbell. The Plant is a true Aggregate. If the Segments of the Cup are united into one Body, and the Flowers drawn down into it, you would have a Dorſtenia.

2. MANY FLOWERED SHEEP ROT.

Plate 9. Fig. 2.

Character of the Species.

Hydrocotyle Umbellata.

The Head is compoſed of a great many Flowers. The Leaves are waved at their Edge; and have the Footſtalk fixed in the Centre.

Fig. 2. *a b.*

THIS is a Perennial, native of Penſylvania; a Bogg Plant as ours, and very like it in the general aſpect. It flowers in June. The Leaves are of a fine freſh green, and are placed on long Footſtalks; the Flowers are ſmall and white.

ONE would imagine Linnæus had excepted againſt the other Species of this Genus, as not belonging to the Umbelliferous Plants, by giving the word Umbellata, as the trivial name of this: but whatever exception (and there is ſufficient) lies againſt them, is good againſt this alſo.

Generic Character.

Five flower'd Sheep Rot.

Many-flower'd Sheep-Rot.

2

Kidney leav'd
Sheep Rot.

Arrow'd Sheep-rot.

Tab. 5.

3. KIDNEY LEAVED SHEEP ROT.

Plate 10. Fig. 1.

Character of the Species. Hydrocotyle Americana.

The Leaves are roundiſh, ſlightly lobated; and have a ſlit in the Front, which reaches quite to the Centre.

Fig. 1. *a b.*

THIS is a Perennial, native of North America, and flowers in June. It creeps upon the ground, with pale, ſlender Stalks, irregularly extending themſelves every way. The Roots are little Tufts of ſlight and ſhort white Fibres at the Joints, from which the Leaves and Flowers riſe alſo. The Leaves are of a delicate, but not ſtrong green on the upper ſide; and paler underneath. The Flowers are ſmall and white.

IT will be obſerved, that we retain the received trivial Latin names of all the Species in the Margin; but the reader will be juſt enough to underſtand, that we retain them as convenient, rather than good ones; and though we uſe them, we by no means approve them. They are a kind of ſimple, ſhort notices of Plants, which though they might eaſily have been better, as in this inſtance (for why ſhould this Species be called American, more than the former?) yet will ſerve the purpoſe as they are. They are appellations in which the Botanic world at preſent, ſeem to be agreed; and they ſerve here inſtead of a multitude of Synonyma, often as bad as themſelves; for they make a kind of catalogue, to which every modern book is an Index.

IT is the more proper for us to retain them, becauſe we often find it neceſſary in compliance with the natural characters of a Plant, to change its Genus; but this, by the help of the trivial key, is always to be underſtood by thoſe who chuſe to conſult other Authors, without confuſion.

4. ARROWED SHEEP ROOT.

Plate 10. Fig. 2.

Character of the Species. Hydrocotyle Aſiatica.

The Leaves are arrowed with a Kidney-ſhaped Baſe, and many riſe together at a joint.

Fig. 2. *a b.*

THIS is a Perennial, native of the Eaſt Indies, a low Plant, but very leafy, and therefore exceedingly conſpicuous on the ground; flowering in May. The Stalks are weak and tender; the Leaves are of a very fine and freſh green. The Flowers are white and inconſiderable.

AUTHORS were by no means agreed to what Genus to refer this Plant for ſome time. Herman [f] underſtood it to be a kind of Corn Sallad (I am afraid it would have proved a fatal one;) and Plukenet [g] thought it of the family of Crowfoots.

[f] Par. Bat. 238. [g] Alm. 314.

5. LINEAR

5. LINEAR SHEEP ROT.

Plate 11. Fig. 1.

Character of the Species. Hydrocotyle Chinenſis.

The Leaves are linear and obtuſe; the Head has many Flowers.

Fig. 1. *a b.*

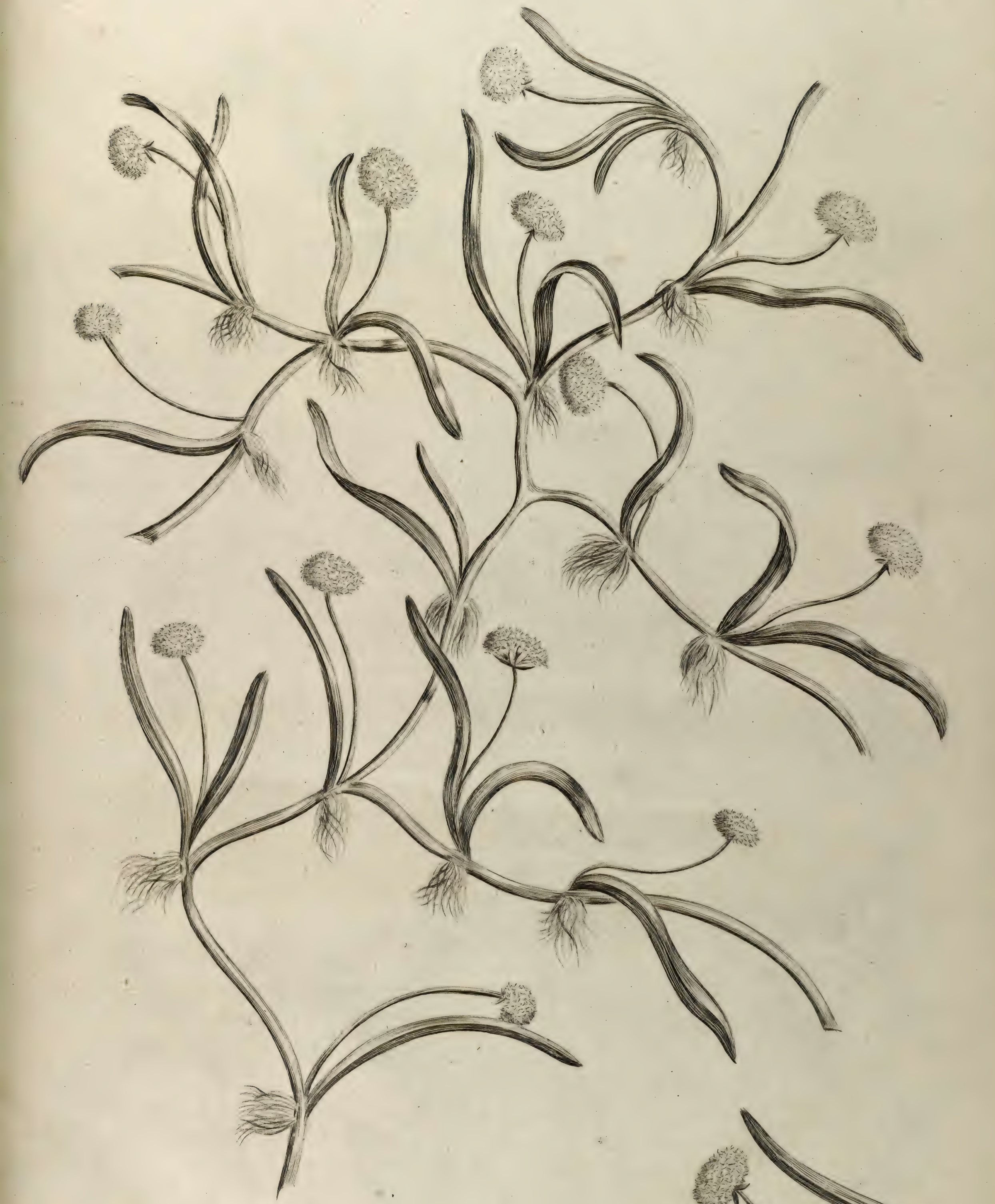
THIS is a Biennial, native of China, a Plant altogether ſingular, for one of this Genus, by the diſcordant ſhape of its Leaves; flowering in Auguſt.

THE Stalk is ſlender but firm; it creeps upon the ground as the others; and ſends uſually two Leaves from the ſame joint, with each Tuft of Roots. The colour of the Stem is pale; the Leaves are of a very fine freſh green; the Flowers are white.

THE Leaves of this Plant, ſo perfectly different from thoſe of the four other Species, rob us entirely, of what they would indeed but ill have left, the common Engliſh name. The Leaves of the firſt are ſo well rounded, and ſtuck on the Stalk in ſo odd a way, without breaking in upon the margin, that the Engliſh ſhepherds, who had too much cauſe to know the Plant, called it Pennywort; and as there was a different Plant entirely, which had the ſame kind of Leaves [h], they were ſoon taught to diſtinguiſh the two by the places of their growth, calling this Marſh Pennywort, and that Wall Pennywort: Thus far the difficulty was to be got over by the help of an epithet: but here is a Plant, whoſe Flowers plainly declare it to be of that Genus, but whoſe Leaves are not in the leaſt like pieces of money.

WE think it very eſſential to have a diſtinct Engliſh name to every Genus, but cannot always anſwer for the propriety of thoſe we uſe; becauſe where there is an old received one, we prefer it always, for that reaſon, to a better that ſhould be new or but leſs known: therefore we have retained to this Genus, an Engliſh name, as old and well received as the other, though perhaps founded in error, and which will ſuit all Species, becauſe it is not taken from the ſhape of the Leaf; this is SHEEP-ROT. The Shepherds have long thought it gives that terrible diſeaſe, the rot, to their ſheep, becauſe they uſually fall into it when they are kept in paſtures where it grows; but the fact may be true, though owing to another cauſe: this Plant never grows but in wet ground; and wet ground will give the rot, whether this grows there or no. They called it White-Rot, to diſtinguiſh it from Sun-Dew, which is another boggy Plant, accuſed of the ſame miſchief. As we have no reaſon for the epithet in one caſe, we may drop it in the other.

[h] Cotyledon umbilicus veneris.



Linear Sheep-rot.

HEALTH-WORT. PANAX Pl. 12.

Generic Character.

Woody Health-wort.

Five-leav'd Health-wort?

Three leav'd Health-wort.

GENUS VIII.

HEALTHWORT.

PANAX.

Generic Character.

The Head is broad and flat; the general Cup is ſhort, and compoſed of narrow ſharp pointed Leaves; the ſeparate Flowers are raiſed upon long Footſtalks, and are compoſed each of five Petals, which turn back at the End.

Plate 12. o. *a b c.*

THIS is the character of the Seed-bearing or Female Plants; there are beſide theſe Male Plants of the ſame Species, whoſe Head is globular.

1. FIVE LEAVED HEALTHWORT.

Plate 12. Fig. 1.

GINSENG.

Character of the Species.

Panax Quinquefolium.

The Leaves ſtand by threes; and each diviſion is into five.

Fig. 1. *a b.*

THIS is a Perennial, native of Tartary; and of Canada, Virginia, and other places in North America; a Plant of wonderful eſtimation in many parts of the world. It grows to a foot or more in heighth. The Stalk is ting'd with crimſon; the Leaves are of a freſh and bright green; the Flowers are white; after theſe come Berries of a Kidney-like ſhape, and of a ſtrong crimſon, full of yellowiſh pulp, in each are two Seeds. It flowers in Auguſt.

THIS is the Plant whoſe Root is the famous *Ginſeng*, of which the Chineſe think ſuch wonders: they eſteem it a cure for almoſt all diſeaſes; and fancy it will make men any thing but immortal. It has been try'd with us, and is found a cordial and reſtorative, but its virtues by no means anſwer the Chineſe accounts.

THEY might well be deceived who looked for the ſame virtues in the Root Nindſi, which is a Species of an umbelliferous Plant Sium, altogether different from this. We have it uſually ſtale and bad, and to encreaſe the diſappointment of thoſe who have ſometimes thought of taking it, we have found that when it has been bought at its weight in gold, the ingenious Chineſe has lodged lead in its middle to encreaſe the profit.

2. THREE LEAVED HEALTHWORT.

Plate 12. Fig. 2.

Character of the Species.

Panax Trifolium.

The Leaves ſtand by threes; and each diviſion is into threes again.

Fig. 2. *a b.*

THIS is a Perennial, native of Virginia, a low Plant, flowering in July. The Stalk is pale; the Leaves are of a faint and yellowiſh green; the Flowers are white; the Root has the flavour of the other, but weakly.

3. WOODY HEALTHWORT.

Plate 12. Fig. 3.

Character of the Species.

Panax Fruticoſum.

The Stem is woody; the Leaves are four times winged; and eyelaſhed.

This is a Perennial, native of the Iſland of Ternate; a little woody Plant of two foot high; branchy and ſpreading. The Stem is of a deep brown; the young Shoots are olive-coloured. The Leaves are of a freſh green; and the Flowers are white.

AGGREGATES.

ORDER II.

Whoſe particular Cup is entire, but folded at the Edge or Brim.

GENUS I.

THRIFT.

STATICE.

Character of the Genus.

The Head is globular, and compoſed of many Flowers. The general Cup is til'd with broad Scales; the Flower is compoſed of five Petals; and the ſeparate Cup is membranaceous toward the Rim.

Plate 13. o. *a b c d.*

1. LINEAR THRIFT.

Plate 13. Fig. 1.

Character of the Species. Statice Armeria.

The Leaves are linear; the Stalk is round, and ſupports only one Head.

Fig. 1. *a b.*

THIS is a Perennial, native of our ſea coaſts in many Places; a very beautiful Plant, flowering in June. The Leaves are of a very fine graſs green. The Stalk is round, ſmooth, of a pale green, and eight Inches high. The Flowers are of a very beautiful crimſon.

THIS is one of thoſe Plants which we have termed univerſal, or common, in a manner, to every part of the earth. Beſide its moſt natural place of growth, the ſea coaſts, it is frequent on mountains; the Alps in Europe, and the Andes in America, afford it; and the ſea coaſts almoſt every where. Its aſpect varies as much as its place; on mountains the Stalk ſcarce riſes to a Finger's heighth; in ſalt marſhes it grows to ſeven or eight inches, and the Flowers are larger in proportion: for this reaſon, two or three Species have been made out of it by the leſs accurate writers, even while they overlooked ſuch as were truly diſtinct. I have received it from Cumberland Iſle, not an inch high, and with the head ſcarce ſo big as a large Pea; but the very ſame Plant has grown in my garden to the uſual ſtature. It is eaſily traced from the extreme North countries, down throughout North, and even South America, as we have mentioned of ſome other Plants.

2. LANCED THRIFT.

Plate 13. Fig. 2.

Character of the Species. Statice Specioſa.

The Leaves are lanced; the Stalk is two-edged and forked, and has ſome Films.

Fig. 2. *a b c.*

THIS

THRIFT. STATICE

Generic Character.

Linear Thrift.

Lanc'd Thrift.

THRIFT. STATICE

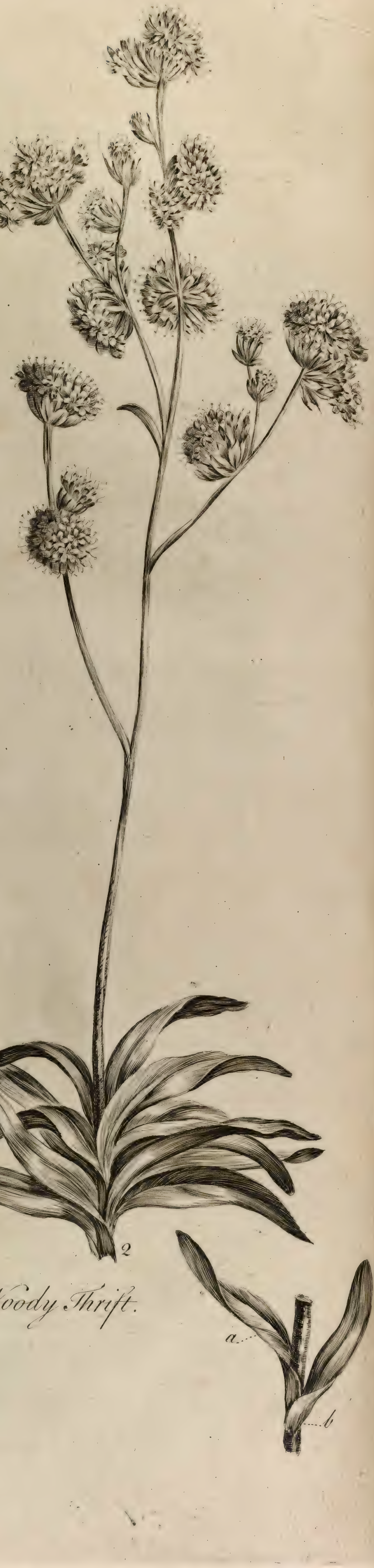
2.

1

High rib'd Thrift.

a

b



2

Woody Thrift.

a

b

THIS is a Biennial, native of Ruſſia and China; a very handſome Plant, flowering in July and Auguſt. The Leaves are of a deep, but ſomewhat blueiſh green. The Stalk is ten inches high, pale and firm. It uſually divides into two branches in a forked manner, and each ſupports ſeveral heads of Flowers; theſe are large but pale, often white entirely.

3. HIGH RIB'D THRIFT.

Plate 14. Fig. 1.

Character of the Species. Statice Flexuoſa.

The Leaves are oblong, oval, obtuſe, and high rib'd; the Stalk is branch'd.

Fig. 1. *a b.*

THIS is a Perennial, native of Siberia; a very handſome Plant, flowering in September. The Leaves are of a very pale green, with high white ribs. The Stalk is whitiſh, weak, and about a foot high. The Flowers are of a very fine crimſon.

THIS Plant varies like the common Thrift in ſtature, and in the bigneſs of the heads. I have ſeen it from three inches to half a yard in heighth, and in ſome Plants the Heads are full as big as a Nutmeg, and perfectly regular; while in others, they are ſlight, ſmall, irregular, and divided. Soil and Situation do all this. They often change the aſpect of a Plant in ſome degree; but never affect its characteriſtic parts.

4. WOODY THRIFT.

Plate 14. Fig. 2.

Character of the Species. Statice Suffruticoſa.

The Stem is woody; the Leaves are lanc'd, round pointed, and embrace it at their Baſe.

Fig. 2. *a b.*

THIS is a Perennial, hard and woody Plant, native of the north of Europe and of Aſia; and flowers in Auguſt. It grows to two foot or more in heighth; the lower part of the Stem is brown and hard; the upper Branches are green and tender; the Leaves are of a very fine green; the Flowers are of a pale, but delicate crimſon.

IT has of late been a cuſtom to join the Thrift, and the Sea Lavender[i] together in one Genus, but they were always, till of late, divided; and we retain the old diſtinction: the diſpoſition of the Flowers demands it; and the character it gives, is plain and obvious.

[i] Limonium.

AGGREGATES.

ORDER III.

Whoſe particular Cup is ſimple; or cut into a ſingle ſeries or range of Segments.

GENUS I.

GLOBEWORT.

GLOBULARIA.

Character of the Genus.

The Head is globular, and thick ſet with Flowers. The general Cup is equal to the Flowers in length. Each ſeparate Flower is tubular at the Baſe, and cut into four Segments at the Rim; the upper one is ſhort, and turn'd back; the three others long, ſlender, and pointed.

Plate 15. o. *a b c.*

1. OVAL LEAVED GLOBEWORT.

Plate 15. Fig. 1.

BLUE DAISY.

Character of the Species. Globularia Vulgaris.

The Leaves from the Root are oval, and unarmed; thoſe on the Stalk are lanc'd, but not ſharp at the point.

Fig. 1. *a b.*

THIS is a Perennial, native of France, and other parts of Europe. It is moſt frequent about Montpelier, but is no where ſo perfectly fine in the Flower as near the Edges of the upland Foreſts in Germany. It flowers in May and June. The Leaves are of a deep and duſky green; the Stalk is five inches high, thick covered with ſmall Leaves of a deep colour alſo; the Flower is of a very beautiful blue.

2. PRICKLY GLOBEWORT.

Plate 15. Fig. 2.

Character of the Species. Globularia Spinoſa.

The Radical Leaves are broad, lanc'd and dented; and the point of every Tooth forms a Thorn: the Leaves on the Stalk are narrow and thorny.

Fig. 2. *a b.*

THIS is a Perennial, native of the mountainous parts of Spain, and flowers in June. The Leaves are of a ſtrong, but not pleaſing green; there is a tinge of a dirty blue in it. The Stalk is not more than four inches high; and its Leaves are like thoſe of the Root in colour, only a little paler; the Flower is of an exceeding beautiful blue; finer even than the former. It covers whole ſpots of many yards in ſome places, and makes a very beautiful appearance.

GLOBEWORT. GLOBULARIA

Generic Character.

Oval leav'd Globewort.

Prickly Globewort.

2

Heart-leav'd Globewort.

Various-leav'd Globewort.

Wedge-leav'd Globewort.

3. VARIOUS LEAVED GLOBEWORT.

Plate 16. Fig. 1.

HERB TERRIBLE.

Character of the Species. Globularia Alypum.

The Stalk is woody: ſome of the Leaves are ſimple lanced; others are divided into three Points at the End.

Fig. 1. *a b c.*

THIS is a woody Plant, native of the South of France, and common alſo in Spain and Italy. It grows to two feet high. The Bark is of a ſtrong coppery brown in its native places, which is a fine contraſt to the colour of the Leaves and Flowers; but is often loſt in gardens. The Leaves are of a very fine green; the Flowers of a beautiful blue. A great many of them are in perfection at once, on the ſeveral branches of the Shrub, in June: at which time, it makes a very beautiful appearance.

THIS is the Plant Authors call HERB TERRIBLE and GUTWORT, from a very harſh cathartic virtue in its Bark.

4. HEART LEAVED GLOBEWORT.

Plate 16. Fig. 2.

Character of the Species. Globularia Biſnagarca.

The lower Leaves are heart-ſhaped; but they are lanced toward the upper parts of the Stalks.

Fig. 2. *a b.*

THIS is a Perennial, a very beautiful Plant, common to Spain, and to ſome parts of Africa; it flowers in May. The Leaves are of a ſtrong, but ſomewhat yellowiſh green. The Stalk grows to two feet in heighth; and is brown and hard toward the Baſe, but green and tender upwards. The Flowers are large, and of a celeſtial blue.

5. WEDGE LEAVED GLOBEWORT.

Plate 16. Fig. 3.

Character of the Species. Globularia Cordifolia.

The Leaves are wedge-ſhaped; the End being broad, and divided into three parts, of which that in the middle is the leaſt.

Fig. 3. *a b.*

THIS is a Perennial, native of the Pyrenees, and of the Swiſs mountains; a low and very ſingular Plant; but far from wanting beauty: it flowers in July. The Leaves are of a coarſe green; the Runners or Offsets from the Roots, which lie upon the ground, are thick and brown. The Flower Stalk is ſlender and greeniſh, only a little brown at the baſe. The Flower is large, and of a delicate and fine azure.

6. NAKED GLOBEWORT.

Plate 17. Fig. 1.

Character of the Species. Globularia Nudicaulis.

The Leaves are lanced; the Flower Stalk is naked.

Fig. 1. *a b.*

THIS is a Perennial, native of the hills in Italy and Germany, but no where ſo abundant, or ſo beautiful as at the foot of the Pyrenees, where it often covers whole acres; as common and as hardy as our Daiſy, which, but for the fulneſs and ſky tint of its Flowers, it very much reſembles. The Leaves are of a deep and ſtrong green; and riſe in Cluſters like thoſe of our Daiſy. The Stalks are numerous, ſix inches high, ſlender and delicate; but of ſufficient ſtrength to bear the weight of the Flower, and of a ſtrong green. The Flower is large, and of the perfect colour of the clear firmament. It flowers in June. The firſt kind has been called Blue Daiſy, and Mountain Daiſy; but this much better deſerves the name, becauſe the Stalk is like that of our Daiſy, naturally and uſually naked; but this is not a certainty, for in luxuriant ſoils, there will grow now and then a Leaf upon it.

THIS may ſhew the neceſſity of taking in more parts than one, into the ſpecific character of a Plant; I remember to have obſerved the ſame thing in reſpect to ſome of the Hawkweeds; and that when I was new in theſe ſtudies, it perplexed me ſtrangely.

7. MANY FLOWERED GLOBEWORT.

Plate 17. Fig. 2.

Character of the Species. Globularia Orientalis.

The Leaves are oval revers'd; ſeveral Heads are placed along the Stalk, growing cloſe and without Footſtalks.

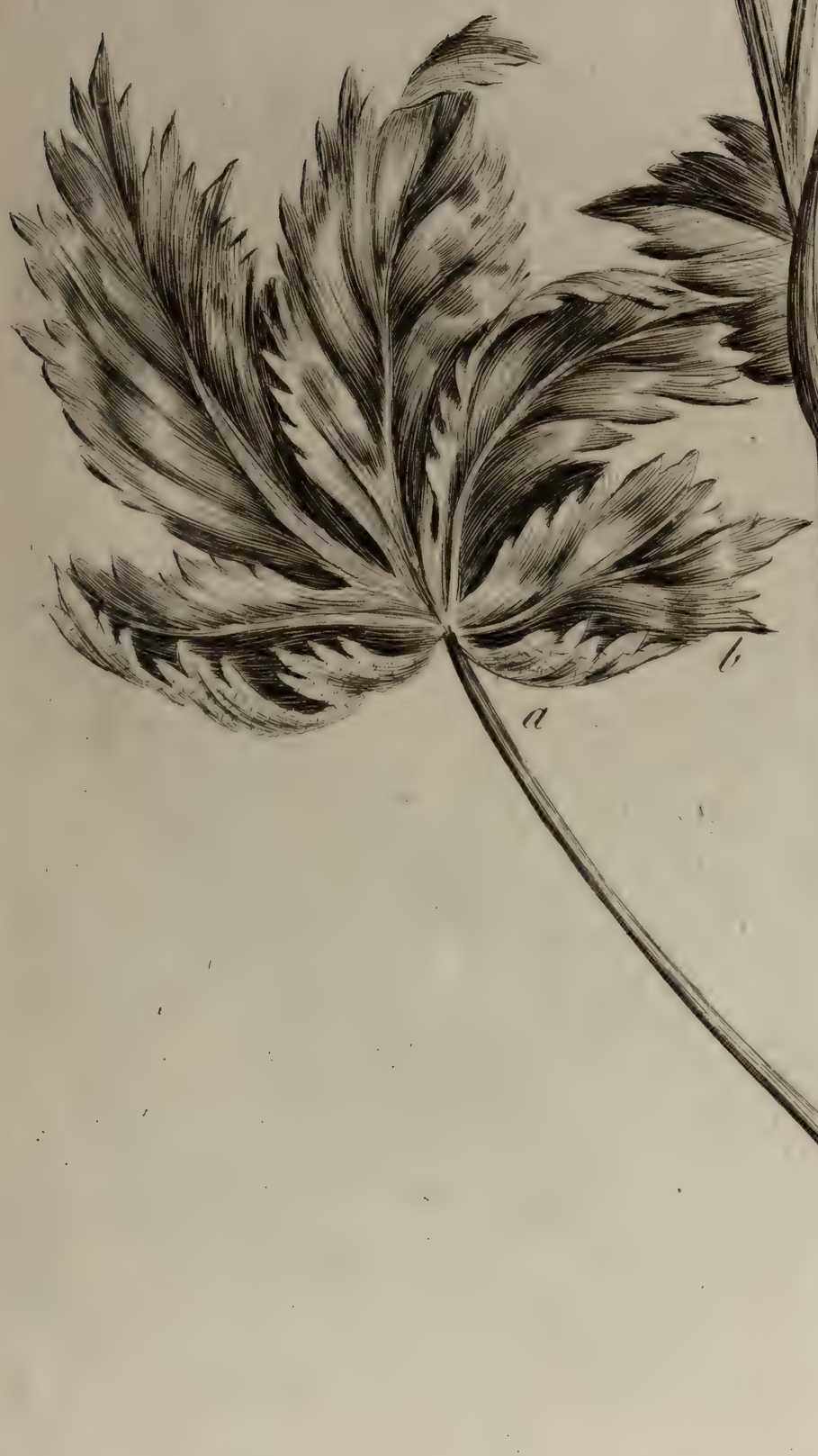
Fig. 2. *a b.*

THIS is a Perennial, native of Natolia, a very beautiful Plant, indeed the moſt elegant of this whole handſome family: it flowers in June. The Leaves are of a very fine graſs green, and have a gloſſy ſurface. The Stalk is near a foot in heighth, ſometimes tolerably thick ſet with Leaves, but in bad ground almoſt naked. The Flowers are perfectly globular, and are of a heavenly blue.

GLOBEWORT. 3

GLOBULARIA

Generic Character.



Five leav'd Masterweed.

Seven leav'd Masterweed.

GENUS II.

MASTERWEED.

ASTRANTIA.

Character of the Genus.

The Head is convex, looſe, and compoſed of many Flowers; the General Cup is longer than the Flowers. Each ſeparate Flower is formed of five Petals, which are a little ſplit, and turn back at the ends.

Plate 18. 2. *a b c.*

1. FIVE LEAVED MASTERWEED.

Plate 18. Fig. 1.

Character of the Species. Aſtrantia Major.

The Leaves are formed each of five large Lobes, divided nearly to the Baſe; and each Lobe terminates in three Points.

Fig. 1. *a b.*

THIS is a Perennial, native of the Apennines, and other mountains throughout the greateſt part of Europe, but not of our country; a very ſingular, and not unhandſome Plant, of a foot or a little more in heighth, flowering in July. The Stalk is rib'd upright; and of a pale green. The Leaves are of a very ſtrong and fine green. The Flowers are of a greeniſh white. There is a tinge of crimſon always ſeen among them; this is from their Footſtalks, which are of that colour. The general Cup is of a greeniſh white, and has, in ſome degree, the aſpect of a Flower.

2. SEVEN LEAVED MASTERWEED.

Plate 18. Fig. 2.

Character of the Species. Aſtrantia Minor.

The Leaves are formed each of ſeven Lobes, cut almoſt to the Baſe; and each Lobe is entire, only ſaw'd at the Edge, and ends ſingly.

Fig. 2. *a b.*

THIS is a Perennial, native of the mountains of Switzerland, a Plant of little beauty, but ſingular in a high degree. The Stalk is ſingle, and about ſeven inches high; the Leaves are of a bright green; the Flowers are white. It blows in Auguſt.

IN each of theſe Plants there are male and female Flowers in the ſame general Head. The Female are placed with their Cups on the top of the Rudiments of the Seeds; the Male on naked Footſtalks. See o. *c d.*

IT has been cuſtomary to range the Aſtrantia among the Umbelliferous Plants; but the impropriety of this we have ſhewn [1].

[1] See Page 4, and the ſucceeding.

GENUS

GENUS III.

GRASS-WEED.

AGROSTANA.

BUPLEARUM LINNÆI.

Character of the Genus.

The Head is flat and looſe; the Cup extends every way beyond the Flowers; and is of one piece, only dented lightly in five places at the Rim.

Plate 18. o. *a b c.*

Of this Genus we know only one Species.

1. YELLOW GRASS-WEED.

Plate 19.

Character of the Genus.

The Leaves are nearly linear, but ſwell a little into breadth in the middle: The Cup has a little Point at the centre of each diviſion.

Plate 19. *a b.*

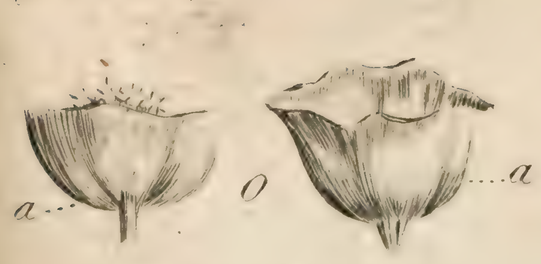
THIS is a Perennial, native of Switzerland, and of ſome parts of Italy; a very pretty looking Plant, flowering in July and Auguſt. The Stalk is pale, firm, and not much branched: it riſes to a foot and a half high in good ground; though in ſome places not to more than ſix or eight inches. The Leaves are a foot long or more; they are of a ſtrong, but ſomewhat yellowiſh green on the upper ſide, and paler underneath; and as they riſe in vaſt cluſters from the Root, and remain all the year, they for a very conſiderable part of that time, have perfectly the look of Graſs. The Flowers are ſmall and yellow: their general Cup is by much the moſt conſpicuous part; and itſelf, in ſome degree, reſembles a large whitiſh Flower; in which at any diſtance, the ſeparate Flowers ſeem only as a cluſter of yellow Filaments.

THOUGH the name be new, the Plant is not altogether ſo; the accurate Haller plainly and certainly knew it. He and Linnæus both, have thought that it is one of Bauhine and Ray's Beupleurums; but if their accounts of that Plant[k] are fairly compared with this, it will, I think, be found otherwiſe.

[k] Perfoliata Alpina anguſtifolia media.

GENUS

GRASS-WEED. AGROSTANA



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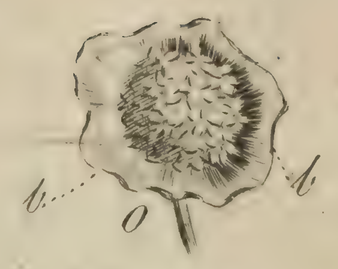


Character.

1

Yellow
Grass-weed.

BEAR-WEED. ARCTOPUS

Generic Character.

Male Flowers.

Starry Bear-weed.

GENUS IV.

BEARWEED.

ARCTOPUS.

Character of the Genus.

The Head is flat, and compoſed of many Flowers without Footſtalks. The general Cup is larger than the Head, formed of one piece, divided into four parts, and thorny at the Edge.

Plate 20. o. *a b.*

THIS is the character of the female or ſeed-bearing Plants: there are barren or male Plants of the ſame Species, in which the Flowers have Footſtalks; and the general Cup is equal to them in length, and formed of five Leaves.

Plate 20. 2.

Of this Genus we know but one Species.

STARRY BEARWEED.

Plate 20.

Character of the Species. Arctopus Echinatus.

The Leaves are fringed with yellow Threads; and armed on the ſurface with ſtarry Thorns.

Plate 20. *a b.*

THIS is a Perennial, native of the Cape of Good Hope; a moſt ſingular Plant, ragged as it were, and fringed and covered with a kind of native horribleneſs, not found in any other Plant. It lies upon the ground, unleſs that in ſome circumſtances a part of its rough and thick black Root, thruſts itſelf up above the ſurface; and bears up the reſt of the Plant like a Cabbage on its rooty Stem.

THE Leaves are of a deep and very ſtrong green; their Edges only have a yellowiſh tinge; and the ſtarry Thorns which grow upon their ſurface, are alſo yellow, bright, and ſhining. The Flowers are white, and the Cup which holds them is of a reddiſh green, and has a peculiar redneſs in the Thorns.

ALTHOUGH there are diſtinct male Plants of the Bearweed; there are alſo male Flowers in the ſame general Cup with the others on theſe Plants. The male Flowers occupy the Diſk of the Cup; the female are only four; they ſtand at the verge at a diſtance from one another; and in the baſe, as it were, of the Spine that terminates each diviſion.

WE owe the firſt knowledge of this ſingular Plant to Plukenet; but it is to Burman we are indebted for its characters.

THE Cup of the Dorſtenia will appear leſs wonderful when we have ſeen that of this Plant; which is nearly as much a Placenta.

GENUS V.

THORNWEED.

ECHINOPHORA.

Character of the Genus.

The Head is flat, and compoſed of ſeveral Flowers without Footſtalks. The general Cup is longer than the Flowers; it is formed of one piece oblong, ſlender at the bottom, expanded at the Top, and ſlightly cut there into ſix irregular parts.

Plate 21. o. *a b c.*

1. FLESHY THORNWEED.

Plate 21. Fig. 1.

PRICKLY SAMPIRE.

Character of the Species. Echinophora Spinoſa.

The Leaves are fleſhy and pinnatifid; and the Segments are thorny at the Points.

THIS is a Perennial, native of the ſea-coaſts of moſt parts of Europe, our own not excepted; and flowers in June; a very ſpecious, and exceedingly ſingular Plant. It grows to half a yard high, but uſually leans in part upon the ground. The Stem is thick, firm, and almoſt woody, rib'd and jointed in a very ſtriking manner. Its colour is uſually browniſh toward the baſe, but elſewhere of a blueiſh green. The Leaves are fleſhy and firm; they are alſo of a blueiſh green, but their points are darker. The Flowers are white, but with a bluſh of crimſon, and ſometimes of yellow.

2. THIN LEAVED THORNWEED.

Plate 21. Fig. 2.

Character of the Species. Echinophora Tenuifolia.

The Leaves are recompound, thin, and divided at the Ends into unarmed Segments.

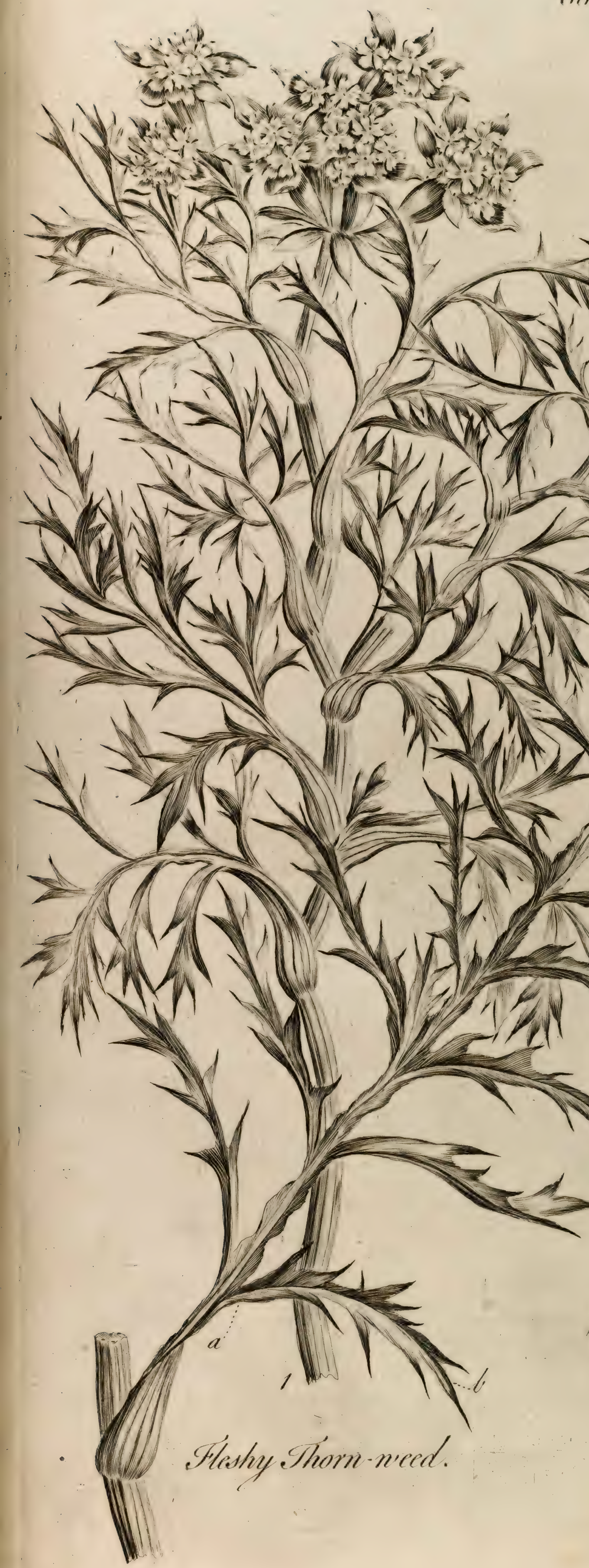
Fig. 2. *a b.*

THIS is a Perennial, native of Italy; principally upon the open ſea-coaſts; a freſh looking Plant; flowering in July and Auguſt. It grows to two feet high. The Stalk is tender, and of a duſky green. The Leaves are ſomewhat thick, but not in the leaſt like the former: Their colour is a yellowiſh green; but the nearer the ſea the Plant grows, the more and more they become of a blueiſh tint. The Flowers are yellow: and the general Cup is always paler than the reſt of the Plant.

GENUS

THORN-WEED. ECHINOPHORA

Generic Character.



Fleshy Thorn-weed.

Thin leav'd Thorn-weed.

EGG WEED. GUNDELIA

GENUS VI.

EGGWEED.

GUNDELIA.

Character of the Genus.

The Head is egg-ſhaped. The general Cup is leafy, and ſhorter than the Head, and is defended by a circlet of perfect Leaves beneath.

Plate 22. o. *a b c.*

Of this Genus we know only one Species.

THORNY EGGWEED.

Plate 22.

Character of the Species. Gundelia Tournofertii.

The Leaves are pinnatifid, and their Edges thorny.

Fig. 22. *a b.*

THIS is a Biennial, native of Syria and Armenia; a moſt ſingular and elegant Plant, flowering in June. It grows to a foot and a half high. The Stalk is thick, firm, and high rib'd, of a reddiſh brown, and not much branched. The Leaves are of a ſtrong and fine green on the upper ſide, and paler underneath; and they are edged with tolerably firm Thorns of the colour of the Stalk. The Flowers are crimſon; and the whole Head, though white at firſt, acquires by degrees that colour.

THIS Plant, in the order of nature, joins Dipſacus and Eryngium; and ſhews how little regard in the true arrangement of Plants, is to be paid to the diſtinctions of artificial Claſſes.

HERE it is neceſſary to place the Plants together under arbitrary ſchemes; and though we know that the nearer they ſtand to the juſt order of nature, the better, yet we cannot but often divide them. We have ſaid in the Introduction to this our artificial method, that it is deſtined to the mere knowledge of Plants as we ſee them; and that in the purſuit of it, we ſhall have no mercy on any Claſs, Order [m], or Genus that would ſtop our courſe. The reader has here an inſtance: while we acknowledge that this Plant in the method of nature, has its juſt place between Teaſell and Eryngium; we give it under an Order different from either, and near Plants it does not belong to; becauſe the ſeparate Cup of its Flower is of a different conſtruction; and it is by that the ſtudent is to know how, and where to find the Plant: we ſhall ſhew him afterwards, according to this hint, where to place it.

[m] Vol. II. Page 44.

GENUS VII.

SHEEPS RAMPION.

JASIONE.

Character of the Genus.

The Head is globular; the general Cup is formed of two ranges of Scales; the one erect, the other dependent, and properly a fringe.

Of this Genus we know but one Species.

HAIRY SHEEPS RAMPION.

Plate 23. Fig. 1.

Sheeps Rampion.

Character of the Species. Jasione Montana.

The Leaves are linear, and slightly serrated.

Plate 23. *a.*

THIS is an annual, native of dry hilly pastures, and common to England, and most other parts of Europe; a very handsome Plant. It grows to a foot or a little more in heighth; the Stalk is slender and weak; pale, and a little hairy. The Leaves are of a pale and browniſh, or greyish green. The Flowers are of a celestial blue, large and very beautiful. It flowers in June. It is common about the farther edge of Hampstead Heath, near the Spaniard's; and in many other Places in dusty closes, and by the sides of roads: but it is in gardens only that it appears in its full and proper lustre; the cluster of Flowers detains the dust, and we see little of their elegance, unless where they are kept in cleanly places.

THIS Plant is altogether singular. It not only constitutes a Genus of itself, of which there is no other Species; but is properly of no Class, natural or artificial. It is one of those which writers usually call Anomalous; but in the higher views of Botany; it is one of the Intermediate or Connecting Plants. It has partly the character of the Tubulate or naked flowered Class, for its Chives cohere; and partly of this of Aggregates, for each Flower is perfect, and has its proper Cup. Therefore in the order of nature, it leads from one of these Classes to the other; fills up an imagined gap between Class and Class in artificial methods, and joins the two, by destroying the distinction. *The Union of its Chives*, obliged us to give a figure of it before at the end of the second Class [n], together with some other singular and connecting Plants, for it claimed thereby that character; here we repeat it more at large, as in its more proper place, according to our plan [o], for the union of its Chives is slight and imperfect, but its separate Cup is perfect and entire.

[n] Vol. III. Page 145.

[o] Vol. II. Page 43.

ORDER

SHEEPS RAMPION. JASIONE

Generic Character.

Hairy Sheeps Rampion.

SCABIOUS. SCABIOSA

Generic

Character.

Harsh Scabious.

ORDER IV.

Whoſe particular Cup is double; or has two Ranges of Segments.

GENUS I.

SCABIOUS.

SCABIOSA.

Character of the Genus.

The Head is convex, and the general Cup is compoſed of ſeveral Ranges of leafy Scales.

Plate 24. o. *o a b.*

1. HARSH SCABIOUS.

Plate 24. Fig. 1.

COMMON SCABIOUS.

Character of the Species. Scabioſa Arvenſis.

The Plant is covered with long firm Hairs which feel harſh; the Flowers ſpread, and form a broad open Verge.

Fig. 1. *a b.*

THIS is a Biennial, native of our Corn-Fields, and flowers in July; a ſtately handſome Plant, that would be thought an ornament in gardens, were it not found in fields. It grows to two feet and a half in heighth. The Stalk is pale and branched. The Leaves are of a light, but pleaſing green; and the Flowers are large, and of a very delicate pale crimſon.

THIS Plant ſtands at the Head of a very large Genus, of which I am afraid all are not genuine Species which are honoured with that name. It is evident, that but the laſt year, I had at Bayſwater, a Plant of the mongrel or mixt kind, between the Eryngium Planum, and this common Scabious; and I ſuſpect extremely, that the Syrian Scabious has the Paſtoria, or little Teaſell for one of its parents: perhaps there are ſome others that ſhould be marked with the ſame character, which experience and ſtrict obſervation will ſhew.

THIS common Scabious, is a Plant of very conſiderable virtue, but at this time much neglected. Chymical medicines have taken, in too great a degree, the place of often more effectual, and always more innocent preparations from Plants. What I perſonally know of the virtues of this, is worthy to be known by all. I have cured aſthmas, with a ſyrup of Scabious made with honey: and terribly ulcerated legs, with a pultice of the Leaves of Scabious, boiled to ſoftneſs.

2. LANC'D LEAV'D SCABIOUS.

Plate 25. Fig. 1.

DEVILSBIT SCABIOUS.

Character of the Species. Scabiosa Succisa.

The Leaves are broad, simple, lanc'd, and serrated at the edges.

Fig. 1. *a b.*

THIS is a Perennial, native of our dry Pastures; and flowers in July. It grows to two feet or more in heighth; but the Stalk naturally leans, in part, toward the ground. The branches are few and ascendant; the Leaves are of a very deep and strong green; as is also the Stalk, except that on the sunny side 'tis often purplish. The Flowers are of a very deep and beautiful blue.

THIS Plant is said to have the virtues of the preceding in medicine; and fanciful writers have given it their name of Devilsbit, because as they or the grandmothers fancied the Devil bit off its Roots, envying their virtues to mankind. The Plant has an abrupt Root, as have some of the Hawkweeds; one of which has also had the same English and Latin name for the same reason; and many other Plants. With respect to its virtues, I think it is inferior to the former; but some of the northern nations have found that it is excellent in dying; and it were well if we, who with all our boasted improvements in the arts are very deficient in that, would cultivate the thought. Perhaps this innocent Weed would yield a green more elegant and lasting, than that we sought to make with Arsenic after the Saxons.

3. DROOPING SCABIOUS.

Plate 25. Fig. 2.

Character of the Species. Scabiosa Alpina.

The Flowers droop: the Leaves are deeply pinnatifid; and the Segments serrated.

Fig. 2. *a b.*

THIS is a Perennial, native of the Swiss mountains, and of many parts of Italy: a Plant of two feet and a half high; flowering in June. The Leaves are of a very strong, but somewhat blueish green. The Stalk is of a deep green; soft and tender. The Flowers are of a very deep blue. The Stalk, just under the Flowers, swells a little and turns, hanging the Flower a little drooping.

SCABIOUS. SCABIOSA

?

Lanc'd Scabious.

Drooping Scabious.

Harp'd Scabious.

Snowy Scabious.

4. HARP'D SCABIOUS.

Plate 26. Fig. 1.

Character of the Species. Scabiosa Transylvanica.

The lower Leaves are harp'd; but the upper ones simply pinnatifid: the separate Flowers are short, and stand low.

Fig. 1. *a b c.*

THIS is an Annual, native of Transylvania; a tall and very handsome Plant, flowering through all the middle part of Summer; and very worthy a place in gardens. The Stalk is firm, erect, thick jointed, and above a yard high. The Leaves are of a faint, but delicate green; and are a little hairy. The Flowers are of a very fine rose colour. They stand much more regularly on the top of the Plant, than in many of the other kinds; and this adds a great deal to their beauty.

5. SNOWY SCABIOUS.

Plate 26. Fig. 2.

Character of the Species. Scabiosa Leucanthema.

The Leaves are irregularly pinnatifid: The Flowers are globular and compact.

Fig. 2. *a b.*

THIS is a Perennial, native of the South of France; a Plant of very singular aspect, flowering in July and August. The Stalk is brown, and woody at the base; the upper part is pale and tender; and its Branches fall wildly, not with that regularity we see in many of the Scabious's. The Leaves are of a whitish green; and have a glossy surface. The Flowers are snow white.

IT is singular that this Plant, evidently the same species, is found at the Cape of Good Hope, where its Stalk is much more woody, and its Leaves lose much of their division. These variations, though they seem great, yet are reduced to nothing, when we examine into their causes. The Cape Plants have often woody Stems, because the force of winter does not destroy them; and even with us, a high or low ground, give more or less divisions to the Leaves. The first is an article of consequence in the history of Plants, because unless understood, many herbaceous Plants will be confounded with Shrubs; but the cause is familiarized to us by good observation here. Last winter being a very mild one, many of the Musk Scabiouses lived through it; and have now woody Stems.

6. FORKED

6. FORKED SCABIOUS.

Plate 27. Fig. 1.

Character of the Species. Scabiosa Syriaca.

The Stalk splits in a forked manner; the Leaves are lanc'd, and deeply serrated, especially toward the base.

Fig. 1. *a b.*

THIS is an Annual, native of Syria, and many other warm parts of the globe; but is no where so plentiful as about Aleppo; though this is not always, but in certain years, for sometimes in the same places, which were before in a manner covered with it, there is scarce a Plant to be seen: the cause of which will be considered. The Plant is a yard and a half high, very beautiful, and lasts many months in flower. The Stalk is ridged, erect and robust, of a pale green, and always rises unbranched for some heighth above the ground. The proper summit of it is terminated by a Flower, a little below which, rise two Branches in a forked manner; and each of these terminating at the Stem give the same forked aspect to the whole upper part of the Plant, with a Flower on a short Footstalk in the division.

THE Leaves are of a pale, and very delicate green; the Flowers are of a perfectly cœlestial blue: though they will vary from this, and sometimes be white.

THE aspect and habit of this Plant, and the extreme uncertainty of finding it in the same place; together with the free growth of the Seeds with us at some times; and their perfect failing at others, though seeming very good and sound, give me a suspicion that the Plant is not a genuine species, but is produced between the Shepherd's Rod and some one of the Scabious's. The habit more resembles the Shepherd's Rod than the Scabious, but is truly of a kind between them. The Leaves have much of the Shepherd's Rod form; and their deep division toward the base, seems an attempt toward the distinct appendages of that Plant: neither does the form of the general Flower deny this alliance. There is in this case less wonder that the Seeds fail often; than that they sometimes grow.

WE shall have an opportunity of enquiring farther into the doctrine of Mulish Plants, at the end of this Genus.

7. HOLLOW'D

SCABIOUS. SCABIOSA

4

Fork'd Scabious.

SCABIOUS. SCABIOSA

5.

Spreading Scabious.

Hollow'd Scabious.

7. HOLLOW'D SCABIOUS.

Plate 28. Fig. 1.

Character of the Species. Scabiosa Tartarica.

The Leaves are lanc'd and deeply saw'd; the lower ones are lightly pinnatifid; and their Segments turn in, and make the Leaf hollow.

Fig. 1. *a b.*

THIS is a Biennial, native of Tartary, and flowers in July; a very tall, stately, and handsome Plant. The Stalk is five feet high, thick, and very upright and robust; the Branches are also coarse and strong, and all covered with that sort of hairyness, which gives the harshness our Scabious has to the touch. The Leaves are rugged, and of coarse green. The Flowers are very large, and of a fine light crimson when first blown; but they grow paler with standing, and get a very faint look as they fade.

8. SPREADING SCABIOUS.

Plate 28. Fig. 2.

Character of the Species. Scabiosa Integrifolia.

The Stalk is smooth, and spreads at the top with wide Branches; the Leaves are lanc'd, dented at the edge, and hairy.

Fig. 2. *a b.*

THIS is an Annual, native of the South of France; and flowers in June. The Stalk is firm, of a dusky green, and two feet high. It rises single, and sends out few Branches till near the top, where it divides and spreads into a wide head; unlike in this respect to any other of the Scabiouses; the Flowers are small, and the Heads globular. Their colour is a singular crimson, having some faint dash of a tint approaching to blue, that plays in an uncertain manner upon the Buds; but is not seen in the open Flowers.

THE divisions of the Flower, in this and the preceding species, are less irregular than in many of the others. The Scabious Genus is so large, that I have wished to form a distinction upon this foundation; but near examination shews the difference is only in the degree of irregularity, for all are more or less irregular; and therefore I have found it impracticable.

9. FINE LEAV'D SCABIOUS.

Plate 29. Fig. 1.

Character of the Species. Scabiosa Columbaria.

The first Leaves are simple, oval, and bluntly dented along the Edges. The others are deeply pinnatifid and serrated; and those on the upper part of the Stalk, most fine and simple in their divisions.

Fig. 1. *a b.*

THIS is a Biennial, native of our hilly pastures, a very beautiful, though wild Plant, flowering in June, July, and August. It grows to near a yard in heighth; the Stalk is delicate, but firm; of a pale green, and not much branched; the Leaves are of a pale green also; and from the fineness and regularity of their divisions, have a beautiful aspect. The Flowers are of a fine crimson, with a dash of pearly blue. They vary exceedingly in size, form and colour, according to the places where the Plant grows. It loves a light soil; but light soils are usually dry; and in these the heads are small and globular, and the Flowers open very imperfectly: the Plant requires to its perfect good condition, some moisture in the light and loose ground, wherein it delights to grow. In this the Flowers obtain their full size, and spread into a breadth that is surprising; here also they have their fine crimson colour. I found the Plant in this fine state near Hornsey Wood; and giving it the same soil, it blows in the same perfection here at Bayswater.

10. PURPLE SCABIOUS.

Plate 29. Fig. 2.

Musk Scabious.

Character of the Species. Scabiosa Atropurpurea.

The lower Leaves are pinnatifid with a broad harp'd end; the others are simply pinnatifid, with long slender Segments.

Fig. 2. *a b.*

THIS is an Annual, native of the East-Indies, a Plant of two feet and a half high, covered with Flowers in July, whose fine deep colour, and perfumed scent, have long made it a favourite in our gardens. Though an Annual with us, it is a Perennial, woody Plant in its native soil, as are many others; and it will live through mild winters, and become woody also sometimes with us. The Stalks are brown toward the base, but of a good green upwards. The Leaves are of a bright green. The Flowers are purple, dotted as it were with their own white styles.

11. SILVERY

SCABIOUS. SCABIOSA

6

Fine leav'd Scabious.

Purple Scabious.

SCABIOUS 7. SCABIOSA

Silvery Scabious.

Woody Scabious.

11. SILVERY SCABIOUS.

Plate 30. Fig. 1.

Character of the Species. Scabiosa Argentea.

The lower Leaves are pinnatifid; the upper ones are only dented irregularly, and that most near the point.

Fig. 1. *a b.*

THIS is a Perennial, native of the Greek islands, a very beautiful Plant, flowering all the summer. It grows to near a yard in heighth, and branches wildly and irregularly; the Stalk is glossy, firm, and white. I should say Vaillant had hit upon a lucky thought in likening it to ivory, but that, with me at least, it is usually stain'd a little with crimson. The Leaves are of a delicate silvery white; the Flowers are of a very pale crimson. Sometimes they are small and very red, at other times they spread out into a great breadth, and get a great deal of a blueish tinge; this latter state is commonly the effect of a too close green-house culture. The Plant will stand very well in the open air, and it is there it gets the true middle size, and strong glowing colour of its Flowers, in which case it is so very much superior to the sickly, spread out, blueish aspect of the green-house; and the starved condition that it sometimes has in a tough soil abroad, that it is scarce like the same Plant.

12. WOODY SCABIOUS.

Plate 30. Fig. 2.

Character of the Species. Scabiosa Africana.

The Stalk is woody; and the Leaves have a few deep and irregular Segments.

Fig. 2. *a b.*

THIS is a Perennial, native of Africa, a wild and irregular growing Plant, but very beautiful, flowering in July and August. The Stem is woody, and two feet high; the lower part is covered with a brown bark; the young Shoots are tender, and of a whitish green. The Leaves are of a light green; the Flowers are numerous, large, and of a delicate pale crimson. If this Plant be managed with care, by cutting off the faded Flowers, and allowing it water regularly, it will be covered with bloom all summer. The Seeds may be spar'd, for they seldom ripen here; and the Plant is so easily propagated by Cuttings that we need not save the Flowers for that uncertain purpose.

13. YELLOW

13. YELLOW SCABIOUS.

Plate 31. Fig. 1.

Character of the Species. Scabiosa Ochroleuca.

The Leaves are doubly pinnatifid; and their Segments sharp pointed.

Fig. 1. *a b.*

THIS is a Perennial, native of Germany, and other parts of Europe; a Plant singular in the division of its Leaf, and colour of its Flower, but yet a true and genuine Scabious, flowering in July and August. The Stalk is thick, firm, branched, and two feet high. The Leaves are sharply and elegantly divided; their colour is a strong green; and they are firm to the touch. The Flowers are yellow; they are very numerous on the Plant, and open in a long succession, but their colour is by no means pleasing; it is a dusky, though not strong yellow; and soon becomes paler and fainter as the Flowers continue open.

14. VARIOUS LEAV'D SCABIOUS.

Plate 31. Fig. 2.

Character of the Species. Scabiosa Maritima.

The upper Leaves are linear, narrow, and undivided; the others are very deeply pinnatifid, with indented Segments.

Fig. 2. *a b.*

THIS is a Biennial, native of the sea-coasts of Spain and Portugal, a tall and handsome Plant, flowering in June. The Stalk is thick but weak; of a strong green, and not much branched. The Leaves are of a fresh and fine green; the Flowers are crimson; they are large and numerous, and last longer upon the Plant than in most of the other Scabious kinds; and for that reason render it desirable in gardens.

IN dry seasons, and very dry soils, the Flowers of this Plant will be perfectly white; and they are then very beautiful; perhaps indeed more so than when of their native colour. Several of the other species will have their Flowers pale, when they are ill nourished, but unless the white be perfect and lively, they never look well in that condition.

I HAD last year an elegant variety of this Plant with the Stalk Proliferous; several Footstalks of new Flowers growing from the back of the Cup of the first which rested sessile on the Stalk. To one unaccustomed to the variations of the Scabious kinds, it would have seemed a new Plant. See Plate 30. Fig. 3.

8

a

2×

Proliferous Variety.

a

b

2

Various leav'd Scabious.

1

b

a

Yellow Scabious.

SCABIOUS. SCABIOSA

9

Grassy Scabious.

Eyelash'd Scabious.

15. EYELASH'D SCABIOUS.

Plate 32. Fig. 1.

Character of the Species. Scabiosa Ucranica.

The lower Leaves are pinnatifid; the upper ones are perfectly simple and linear; and are eyelash'd near the base.

Fig. 1. *a b.*

THIS is a Biennial, native of Tartary and China, a tall, singular, and not inelegant Plant, flowering in August. The Stalk is slender, upright, not much branched, and of a full and fresh green. It is weak but tough, so that it plays about in the wind without breaking, and offers its numerous Flowers to view in various ways, and in a very pleasing manner. The Leaves are of a fresh and pleasant green; the hairs which form the Eyelash at the base of the upper ones, are harsh and firm; and give that part of the Plant the same harshness to the touch that we feel in the common Scabious of our fields. The Flowers are of a light crimson; the Heads are not so large as in some of our common Scabiouses; but the colour and number of the Flowers, make good amends for that deficiency.

16. GRASSY SCABIOUS.

Plate 32. Fig. 2.

Character of the Species: Scabiosa Graminifolia.

All the Leaves are linear; but a little swelling in the middle.

Fig. 2. *a.*

THIS is a Biennial, native of Germany, a low Plant, singular enough, but of no great beauty, flowering early in July. The Stalk is weak, tender and bowing, for the Flowers are large; its colour is brown at the base, elsewhere green. The Leaves are of a fresh and fine green; and have so much of a grassy look, that, unless when the Plant is in flower, or in bud rather, for then the colour is much more glowing; it is not readily distinguished from the grass, among which it usually grows. The Flowers are of a bright and fine crimson. This Plant, when entire, would look very like a branch of the former, only that the Leaves have nothing of that eyelashed hairyness at their base.

17. RUGGED SCABIOUS.

Plate 33.

Character of the Species. Scabiosa Lanata.

The Leaves are oval, and covered with a rough woolly matter.

Plate 33. *a b.*

THIS is a Perennial, native of the Cape of Good Hope, unlike in appearance to most of the Cape Plants, but of a rough and robust aspect, which to the curious eye, surpasses beauty. To describe it, will be to say, that it has neither form nor colour, delicacy nor simplicity; but to look upon it, is to be astonished; and whoever sees it, knows there is something in the aspect of a Plant superior to beauty.

IT rises to little more than a foot in heighth; and though its Stalk is extreamly thick and strong, it always leans, and often lies upon the ground entirely. The Leaves are thick and fleshy, of a blackish green on the upper side, and white on the under; but on both covered thick with a long curly, heavy, cottony matter, scattered wildly, and as it were, irregularly over them. The two sides of the Leaf are a fine contrast to one another; and they are usually seen more or less in every Leaf together, for the sides toward the base are naturally turned in, and drawn up; and most in the youngest.

THE Stalk is tough and spungy, and is covered thicker than the Leaves with this white frizzled matter: we know the singular harshness there is upon the Stalks and Leaves of the Scabious of our corn fields: but this is soft and woolly, it gives way to pressure, and has a wonderful yielding to the touch, but rises again presently to its usual form. The Branches are few; the filmy Leaves upon them are white entirely. The Flowers are very large and green, but with a slight tinge of yellowish. Their Cups have the same woolly whiteness with the Leaves; and this gives a pleasing contrast to the colour of the Flowers. They blow in August.

IT does not seem that any of the writers on Botany have known this Plant, except Burman; and with him it appears in a degree of eminence and singularity, beyond what I have seen: the Flowers on his Plant were proliferous; on mine they are simple; but 'tis a luxuriance to which the Scabiouses are not absolutely strangers, as we shall see in the succeeding species, even in their wild state: and culture gives this condition sometimes in a high degree, even to the Musk Scabious.

SCABIOUS. SCABIOSA

Rugged Scabious.

Proliferous Scabious.

18. PROLIFEROUS SCABIOUS.

Plate 34.

Character of the Species. Scabiosa Prolifera.

The Leaves are broad lanc'd; the Stalk is proliferous.

Plate 34. *a b.*

THIS is a Biennial, native of China and India, a low, but exceedingly singular Plant, flowering in July. The Stalk is firm, hard, and brown, almost woody at the base. It does not exceed six or seven inches in heighth, and a part even of that lies upon the ground; the bottom is brown with some tinge of red; the rest greenish with white hairs; these are rough and rugged, and give it the same harshness to the touch, that we find in the common Scabious of our corn fields.

THE Leaves are of a pale, and but unpleasing green. The Flowers are of a very pale yellow: the outer ranges of these in every Head are so much larger, and more divided than the rest, that in some views, one would suppose the whole Head only a single Flower.

THIS is not constant or certain in this Plant, at least not in degree; and it obtains more or less in many other of the Scabious kinds. When this grows in a dry soil, and fully exposed to the sun, the outer Flowers do not exceed the inner ones, more than in the common Scabious; but they are always much more irregularly divided; on the other hand, Plants from the same parcel of Seeds, raised in a moist place, under some degree of shade, have spread out here their outer Flowers to a degree much exceeding what is shewn in this figure. The same situation and accidents will wonderfully alter the Flowers, especially the outer ones, of many of the common kinds; and I have seen such difference between the Green-house Plants, and those of the open air, in the same species, as would make some think the objects too vague for description, or for figure; moderation in our accounts and representations is the rule of being right; and there always remain parts enough that are unchangeable to ascertain the character.

19. ENTIRE LEAV'D STARRY SCABIOUS.

Plate 35. Fig. 1.

Character of the Species. Scabiosa Cretica.

The Leaves are lanc'd and undivided; the Seeds have starry crowns.

Fig. 1. *a b.*

THIS is a Perennial, native of Crete; and other of the Greek Islands: a Plant of very agreeable aspect, that bears the free air with us perfectly well; and flowers as gaily as if on its native land, in July and August.

IT grows to two feet and a half high; the Stem is woody at the bottom, and there of a browniſh hue; higher up it is tender, and of a pale grey. The Leaves are of a greyiſh or whitiſh green; they are naturally quite entire, and even at the edge; but sometimes where the Plant has very luxuriant nourishment, they are wavy, and in a manner indented. The Flowers are of a pale and delicate crimson: they vary much in size, according to the season, or to the degree of the culture they receive, as is the case in many of the other Scabiouses. And in general, when they are largest they are palest; and when smallest, of the strongest colour.

THE Flowers are not the only production of this Plant, for which it is, and deserves to be esteemed in gardens; they are handsome enough, and the succession of them is very lasting; but the Heads of Seeds that follow, have a striking aspect; and to those who esteem singularity as beauty, they cannot but be very pleasing; they are oval, and crown'd with a dry shining membranaceous cover, and five starry threads.

THIS kind of ornament about the Seed, has led many to make a division among the Species of this Genus, and to range such as have it alone, under the distinct name Asterocephali; but nature denies the exact limits between these and the common kinds; the ascent toward this peculiar structure, is by so light degrees, that none can say where it is perfect; therefore the distinction is omitted, not only here, but by the most correct authors beside; for where the point of difference is not determinate, we confound instead of distinguishing when names are multiplied, and differences established.

20*. PALÆSTINE SCABIOUS.

Plate 35. Fig. 2.

Character of the Species. Scabiosa Palæstina.

The Flowers have their Segments spread out and cut in threes at the point. The upper Leaves have a pinnatifid base.

Fig. 2. *a b.*

THIS is a Biennial, native of Palæstine: a pretty Plant of a foot high; flowering in June. The Stalk is of a pale green; the Leaves are of a fresh strong green; the Flowers are white.

20. DECUM-

SCABIOUS. SCABIOSA

12

Entire leav'd. Starry. Scabious.

SCABIOUS. SCABIOSA

13

Decumbent Scabious.

20. DECUMBENT STARRY SCABIOUS.

Plate 36. Fig. 1.

Character of the Species. Scabiosa Pterocephala.

The Stalk leans upon the ground; and is woody at the base. The Heads have extremely short and naked Footstalks.

Fig. 1. *a b.*

THIS is a Perennial, native of the Levant Islands, a low and very singular Plant, flowering from July to September. The Stalk is hard, rugged and woody near the base, but elsewhere tender and green; it grows only to six or eight inches in length; and for the most of that, it lies upon the ground. The Leaves are naturally of a fresh and fine green; but they are rendered grey by a multitude of long white hairs. The Flowers are of a bright, though not very strong crimson, and are large, though the Plant is low: the Heads of Seeds are very beautiful; they are dry, shining, brown and downy. The hairs which give that aspect are pale, and keep their place and form very regularly, though they have nothing of that firmness we find often among the hairs of the Scabious kinds.

21. FEATHERY SCABIOUS.

Plate 36. Fig. 2.

Character of the Species. Scabiosa Papposa.

The Cups of the separate Flowers are downy.

Fig. 2. *a b.*

THIS is a Biennial, native of Crete, and other of the Greek Islands; a handsome Plant of two feet high, flowering in August. The Stalk is tender to the bottom, upright, green, branched, and often very spreading. The Leaves are of a pale and greyish green: the Flowers are of a pale crimson. There is a white woolliness about the head of Flowers which gives the Plant an aspect different from all the others; it is owing to a peculiar light, and white hairy, or rather cottony matter that encircles the base of the separate Flowers, and arises from the Cup.

THIS has not the merit of so long continuance in flower as some of the other species of Scabious; but while in bloom, it is as beautiful as almost any of them.

N 22. PINNATIFID

22. PINNATIFID STARRY SCABIOUS.

Plate 37.

Character of the Species. Scabioſa Stellata.

The Leaves are deeply pinnatifid; and the Segments cut again.

Plate 37. *a b.*

THIS is an Annual, native of Spain, a very beautiful Plant, of two feet and a half in heighth, flowering in Auguſt. The Stalk is firm, thick jointed, of a pale green, upright, and not very much branched: the Shoots are afcendant as in our Devilſbit Scabious, ſo that there is formed a very fine head to the Plant, with their numerous and large Flowers. The Leaves are of a pale, and ſomewhat greyiſh green. The Flowers are of a fine pale blueiſh crimſon; and the heads of Seeds, which have indeed little leſs beauty than the Flowers themſelves, are of a pale but ſhining brown. Theſe are very laſting, but the Flowers ſoon fade.

THE Flowers of this Plant are ſometimes redder than they are here deſcribed, and in that caſe, the general head is rounder and leſs ſpread at the edge. A Plant of this kind I received two years ago from Portugal, gathered at the edge of a vineyard, where it ſtood overſhaded: the Footſtalks of the Flowers were alſo longer than I had ſeen them; and the Plant, from all theſe circumſtances, had an aſpect ſo different from what is uſual, that one leſs accuſtomed to ſtrict obſervation, might eaſily have ſuppoſed it a diſtinct Species, and have boaſted to the world a new Plant. Perhaps many of the Scabious's deſcribed by leſs accurate authors, and which, from the uncertain deſcriptions, one knows not whither to refer, were of this kind: the differences in the ſame Species are ſo great, in reſpect to the ſize of the head, and length of the Footſtalk, that they give often a very different face to the particular Plants; but this appearance of diſtinction, when examined, vaniſhes into more or leſs, which affords no real difference, and the Plants are always to be diſtinctly known, for their ſpecific characters remain unaltered. I caution the young ſtudent particularly in this matter. Let him eſtabliſh in his mind a middle ſtate; and the extreams will not perplex him. I have endeavoured every where to give it in theſe figures; there are many of them whoſe Heads and Footſtalks I have new drawn ſix or eight times to hit the proper ſtandard.

SCABIOUS. SCABIOSA

14

Pinnatifid Starry Scabious.

Multifid Scabious.

Tsetense Scabious.

23. MULTIFID SCABIOUS.

Plate 38. Fig. 1.

Character of the Species. Scabiosa Triandra.

The Leaves from the Root are simple, oval, and serrated; those on the Stalk are divided into a multitude of very slender Segments.

Plate 38. Fig. 1. *a b.*

THIS is a Biennial, native of the South of France, a very singular, and very handsome Plant; flowering from June to August.

THE first Leaves are of a deep and very beautiful green; the Stalk is also of a strong green; and its Leaves only a little paler. The heighth of the Plant is about a foot, and it has not many Branches; those it has are tender, and apt to have the lassum collum of the poet bending under the weight of the Flowers; these are very large, and of an exceeding fine glowing crimson, with some tinct of blue among it, which in certain lights gives it a cast of purple.

THERE is something so singular in the separate Flowers of this Plant, that it would not seem strange to give a new generic character, and place it alone under another name; but many things may be perfectly wrong, which would not seem strange. The great apparent singularity in this Plant, is that the Flower is divided only into three Segments, all the others having four or five; and there is another article, which though less obvious, will appear to many yet more important; which is, there are only three Chives, whereas the other Scabious's have four. But in answer to all this, the first glance of the eye would teach the common observer to call it Scabious; and frequent inspection of the Flowers will shew that, though usually they are not always trifid.

THE three Stamina, if regarded, would remove this Plant out of the fourth into the third Class in the sexual system; but the author of that method has not offered so much violence to nature, as to remove this from the other Scabious's, though different from them according to his characters even in Class. He has retained a distinction between the Flowers with five, and those with four Segments, among the Scabious's; but I have not found it permanent enough for such division. They are figured with each Species as they usually appear; but they vary in their division often.

24. ISETENSE SCABIOUS.

Plate 38. Fig. 2.

Character of the Species. Scabiosa Isetensis.

The Flowers spread open like a star; the Leaves are twice winged, and their Leafits are linear.

Fig. 2. *a b.*

THIS is a Perennial, native of Siberia; a very pretty Plant, of ten inches high, flowering in August. The Stalk is pale. The Leaves are of a yellowish green. The Flowers are white.

GENUS

GENUS II. —— If PERMANENT.

NEEDLEWEED.

ACURA.

Character of the Genus.

The Head is convex; and the general Cup is formed of a ſingle range of Films, pointed and edged with hard and bony Thorns, reſembling the ſharp ends of needles.

Plate 38. o. *a b.*

Of this Genus there is known only one Species.

HARP'D NEEDLEWEED.

Plate 39. Fig. 1.

Character of the Species.

The Leaves are harp'd with broad obtuſe Segments.

Fig. 1. *a b.*

THIS is an Annual, a firm, upright Plant of regular growth, flowering in Auguſt; very glowing in the number, and in the colour of its Flowers; but too ſtiff and exact in the diſpoſition of them for beauty. The Stalk is hard and almoſt woody at the baſe, where it is of a reddiſh brown, elſewhere it is green and firm, but without that woody hardneſs. The Leaves are of a good green; and the Flowers are crimſon.

IT grows to two feet and a half in heighth; and toward the top ſends out a multitude of Branches, all if diſtinctly regarded in a proliferous manner. The main Stem is terminated at about two feet heighth by one head, which blows earlier, and is always larger, and compoſed of larger and opener ſeparate Flowers than the others: four Branches uſually riſe from the boſom of the two upper Leaves; and each of theſe is terminated in like manner by one head; and from the joint below this grow two Stalks again. In this manner, and this only, the Branches at the head of the Plant riſe. It is proliferation, though not ſo diſtinctly apparent as in the Scabious thence named,

and

Harpi'd Needle-weed.

GLOBE-THISTLE. ECHINOPS

Generic Character.

One headed Globe-Thistle.

Many-headed Globe-Thistle?

Tol. 5

and ſome others. If I might be allowed a new term, this manner of growth, which is not peculiar to the preſent Plant, ſhould be called Proliferation with a Footſtalk; for take away the Footſtalk of the firſt Flower, and place it ſeſſile on the main Stalk, and every one will ſee the true Proliferation. The caſe is the ſame at the termination of every Branch. We want terms for the diſtinct manner of the diviſions of the Stalks of Plants; it may be well to adopt this.

THE country of this Plant is Italy; if it have any Country diſtinct from my own garden, of which I entertain doubts. It becomes me to deliver them. It's hiſtory will give my reaſons, and every one will be as able as myſelf to judge of them.

IN the autumn of the year 1760, I received from Italy the Seeds of many Plants then newly ripened. When I had ſorted them according to the beſt gueſs I could make as to their kinds, they were ſown in ſuch places as were proper for the expected Plants, according to the diſtribution of this work; and conſequently the Seeds of many Scabiouſes, and of two or three Eryngiums, were ſown near together: for however authors had received from one another the notion of putting Eryngium among the umbelliferous Plants, I had early eſtabliſhed it an Aggregate, as the moſt exact examination ſhews it now to be. Some Scabiouſes and ſome Eryngiums grew from theſe Seeds, and flowered in 1761, but there was nothing ſingular among them. In the ſpring of 1762, I was firſt ſtruck with the appearance of a harp'd Leaf, utterly unknown to me, among the Seedlings: there grew up, and flowered this autumn, the Plant here repreſented; and there ſeem good Seeds formed.

IF I had known ſuch a Plant before, or if any author had deſcribed ſuch a one, it would not have appeared very wonderful to me, that it ſhould appear a ſecond year from ſowing, though not the firſt; for a very little practice in gardening, will ſhew how apt Seeds are to lie dormant a longer time than that: but as I know of no ſuch Plant, and as it appeared only a ſecond ſeaſon; and moſt of all, as it ſeems to me in its aſpect an unnatural Plant, I have ſuſpicions that it is a Mongrel or Muliſh Plant, produced between the flat Eryngio, and ſome one of the Scabiouſes.

WE know theſe mixtures ſometimes happen among Plants; perhaps they are more frequent than we are aware. In general, the Plants produced thus are ſoon loſt, becauſe their Seeds will not grow; but this is not always the caſe. I have been told that the Dittany produced between the Sypline and Cretan, produces Seeds which ſometimes vegetate; and I can ſpeak with certainty of a Plant between the Welch Veronica and the common kind, of which I have many Plants now raiſed from Seed, and living.

WE are not now to learn that a Muliſh Plant may be produced between two Plants of different Genera; but as the mixture is leſs regular, perhaps it is a law of nature that the Seeds of ſuch ſhall not grow: we ſpeak much in the dark of theſe things; for they want much, and have had yet very little obſervation; but from what I have yet ſeen, I think it will be found that among Muliſh Plants, the Seeds of ſuch as are produced between two ſpecies of the ſame Genus, will ſometimes, though but ſeldom, grow; and that by degrees, the new offſpring will loſe all that it had of likeneſs to the female, and be-

come the ſame with the male Plant entirely; on the contrary, that ſuch of the Muliſh Plants, as are produced from a male Plant of one Genus, and a female of another truly diſtinct, never produce Seeds that will vegetate, however fair they may look, and that by theſe means, when the individuals ſo produced periſh, the new Plant is for that time loſt.

UPON theſe principles, uncertain as they may be, I ſhall endeavour to bring the preſent ſubject to a trial. Its own Seeds are carefully ſown in a place diſtinct and diſtant from that where it now grows; and in an experiment-bed deſtined for ſuch purpoſes, the Flat Eryngo, and more than one Scabious, are placed in pairs cloſe together, as if growing from one Root; to aſſiſt, if there be any ſuch, the mixt impregnation.

IF in this place, Plants of this kind ariſe, I ſhall judge it certain that it is Muliſh, and riſes from this accidental mixture; if its Seeds ſown in diſtant ground produce it, and none riſe from the purpoſely aſſociated Plants, I own I ſhall begin to judge it a ſpecies from the creation, a Plant before unknown. In that caſe, it will deſerve the place it holds here; and the rank of a new Genus muſt belong to it: but I exceedingly doubt it; for the Cup, though ſo diſtant from Scabious, ſeems true Eryngo; and the harp'd end of the radical Leaf, together with its hollow Footſtalk, ſeem equally the Flat Eryngo; though its Flowers are plain and abſolute Scabious; and the wingy Segments of that very Leaf, ſeem alſo to belong to a Plant of that kind.

AGGREGATES.

AGGREGATES.

ORDER V.

Whoſe particular Cup is til'd, or has ſeveral ranges of Segments.

GENUS I.

GLOBE THISTLE.

ECHINOPS.

Character of the Genus.

The Head is globular; the general Cup is compoſed of one range of filmy Segments, and is ſhorter than the Flowers; the ſeparate Flowers are cut into Segments, which turn back at the Points.

Plate 40. o. *a b c.*

1. MANY HEADED GLOBE THISTLE.

Plate 40. Fig. 1.

Character of the Species. Echinops Sphærocephalus.

The Stalk is branched; and ſupports ſeveral Heads of Flowers.

Fig. 1. *a b.*

THIS is a Perennial, native of Spain and Italy, an upright handſome Plant, of a yard or more in height, flowering in July and Auguſt. The Stalk is firm, thick, and brown; the Leaves are of a dark and duſky green on the upper ſide: but whitiſh and hoary underneath. The Flowers are naturally of a blueiſh white, ſometimes they are white entirely; and ſometimes they are crimſon: this is the moſt beautiful, but the leaſt uſual ſtate of the plant.

2. ONE HEADED GLOBE THISTLE.

Plate 40. Fig. 2.

Character of the Species. Echinops Ritro.

The Stalk is ſimple; and ſupports only one Head of Flowers.

Fig. 2. *a b.*

THIS is a Perennial, native of Italy, and the South of France, a very handſome Plant, flowering in Auguſt. It grows to two feet and a half in heighth. The Stalk is rib'd, firm, of a greeniſh white; and in the wild ſtate is deſtitute of branches; in gardens it has often more than one; but in this caſe, each Branch ſupports only one Flower, ſo that the character of the ſpecies is yet kept diſtinct; the Leaves are of a pale but pleaſant green on the upper ſide, and white underneath. The Flowers are of a very beautiful blue. The ſeparate Flowers and general Heads, vary conſiderably in ſize; they are twice as big in gardens as we ſee them in wild nature.

GENUS II.

CLUSTER THISTLE.

RUTHRUM.

Character of the Genus.

The Heads are cylindrick; and many ſtand cluſtered together. The general Cup is compoſed of two ranges of leafy Segments. The ſeparate Flowers are cut into five ſlender Segments.

Plate 41. o. *a b.*

1. PINNATIFID CLUSTER THISTLE.

Plate 41. Fig. 1.

Character of the Species. Echinops Strigoſus.

The Leaves are pinnatifid, with wav'd Segments.

Fig. 1. *a b.*

THIS is an Annual, native of Spain, and of the South of France, a very pretty Plant, flowering in July and Auguſt. The Stalk is white, firm, upright, and but little branched; and grows to two feet high. The Leaves are of a pale whitiſh green on the upper ſide, with ſome ſtiff hairs upon them. They are altogether white underneath, and weakly thorny at the point. The Flowers are of a very pale, but very elegant blue; not unlike the colour we ſee in what are called Water Sapphires by the Jewellers, in which there ſeems a milky whiteneſs ſuffus'd among a good blue.

HERMAN underſtood this Plant to be a Scabious; we ſee the utility of obſerving the ſeparate Cups, and the propriety of forming a diſtinction upon their ſtructure, ſuperior to Genus, though below a Claſs.

2. DOUBLY PINNATIFID CLUSTER THISTLE.

Plate 41. Fig. 2.

Character of the Species. Echinops Corymboſus.

The Leaves are doubly pinnatifid; with irregularly cut Segments.

Fig. 2. *a b.*

This is a Perennial, native of the Greek iſlands, and of many parts of Europe, as Italy and the South of France; a robuſt and handſome, though rough-looking Plant, flowering in Auguſt. The Leaves are broad, and of a deep green; but their Ribs uſually are whitiſh. The Stalk is green, irregularly branched, and two feet high. The Flowers are numerous, and of a deep and perfectly fine blue. They crown the ſpreading Head of the Plant profuſely, and laſt a long time in their beauty.

GENUS

CLUSTER-THISTLE. RUTHRUM

a
c
d
b

Generic Character.

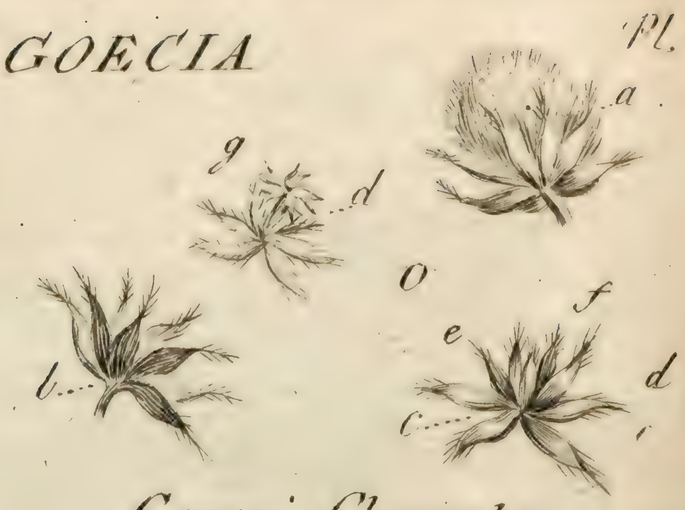
b
a

Pinnatifi'd Cluster Thistle.

b
a

Double Pinnatifi'd Cluster Thistle.

CUMMIN-WEED. LAGOECIA



Generic Character.

Wing'd Cummin-weed.

GENUS III.

CUMMIN-WEED.

LAGOECIA.

Character of the Genus.

The Head is nearly globular; but a little inclining to oval [a]. The general Cup is compoſed of two Ranges of Segments, feathery at the ends [b]. The ſeparate Cup [c] is compoſed of three Ranges of feathery Segments; the outermoſt conſiſting of four [d], the next of three [e], and the innermoſt of two [f]. The ſeparate Flower is compoſed of five Petals ſplit at the ends [g].

Plate 42. o. *a b*. c d e f g.

Of this Genus we know only one Species.

WINGED CUMMIN-WEED.

Plate 42.

Character of the Species. Lagoecia Cuminoides.

The Leaves are wing'd; and their Leafits are indented.

Fig. 1. *a b*.

THIS is an Annual, a ſmall and inconſiderable, but moſt extreamly ſingular Plant, native of the Greek iſlands, and of ſome of the warmer parts of Europe; flowering in May and June. The Stalk is weak, round, of a pale green, and toward the top, branches out wildly. The Leaves are of a faint, and ſomewhat whitiſh green. The Flowers are white, with a ſlight tinge of green or yellowiſh; ſometimes, and indeed always in Greece, white entirely.

THIS is one of thoſe Plants which has perplexed moſt of the writers in Botany where to place it. The name of Cummin-weed or wild Cummin, given it by our old Engliſh writers, like that of Cuminoides, by thoſe of a ſomewhat higher Claſs in other languages, ſhew how very ill they judged of it: the more accurate have been extreamly perplexed about its ſeparate Cup, which is the great article for finding its true place under a proper claſſical diſtribution. They have ſuppoſed it to be two diſtinct bodies, but it is in nature only one: the parts of which it is compoſed, riſe all from one common baſe; and it differs from the Cup of the Globe Thiſtle, only in the Films ſtanding more remote. None will doubt the ſeparate Cup in that Plant being imbricated; nor ought they therefore to doubt the ſame of this.

AGGREGATES.

ORDER VI.

Whoſe particular Cup is formed only of one oval hollow Leaf.

GENUS I.

BIRDWEED.

SIGESBECKIA.

Character of the Genus.

The Head is flat, looſe, and compoſed of few Flowers. The general Cup is longer than the Flowers, and conſiſts of five oblong Leaves in a ſingle Range. The ſeparate Flowers are tubular, and cut into five parts; and there are outer Ranges flat, and cut into three.

Plate 43. *a b.*

1. SIMPLE LEAV'D BIRDWEED.

Plate 43. Fig. 1.

Character of the Species. Sigeſbeckia Orientalis.

The Leaves have Footſtalks which riſe ſimple and naked from the Stem.

Fig. 1. *a b.*

THIS is an Annual, native of China, and the Indies; a Plant of more ſingularity than beauty, flowering in July and Auguſt. The Stalk is browniſh, firm, and more than a yard in heighth. The Leaves are of a bright green; the Flowers are yellow; the Cup is alſo yellowiſh, and its glandular hairs are brown.

2. ALATED BIRDWEED.

Plate 43. Fig. 2.

Character of the Species. Sigeſbeckia Occidentalis.

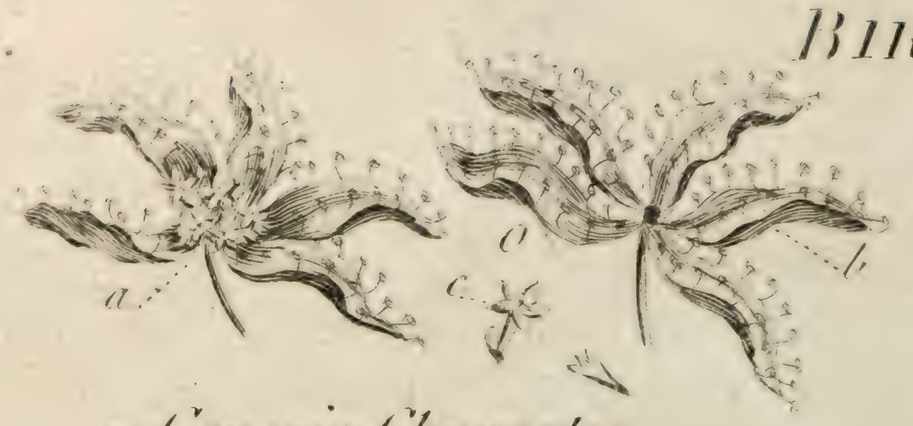
The Leaves have winged Footſtalks, which run down the Stem.

Fig. 2. *a b.*

THIS is a Biennial, native of Virginia and Carolina; a ſingular and not inelegant Plant; flowering in July. The Stalk is of a reddiſh brown, but edg'd with green from the Footſtalks of the Leaves in a very pretty manner. It grows to near two feet in heighth. The Leaves are of a dark green; and the Flowers are yellow. The Heads in this Species are apt to drop their outer Cups, as ſome of the Radiate Flowers do their Rays. 'Tis neceſſary to name this; or it might perplex the ſtudent.

THESE are Plants of that kind, which naturally perplex the inventors of artificial ſyſtems; for they carry the proper marks of different Claſſes: but they are of infinite value in the method of nature. They are the frontier kinds, between the Radiate and Aggregate Plants, joining the two Claſſes, but belonging diſtinctively to neither. They have the marks of both; and we have repeated them under each. They belong to the Radiates by the union of their Chives; to the Aggregates, by their general and ſeparate Cups.

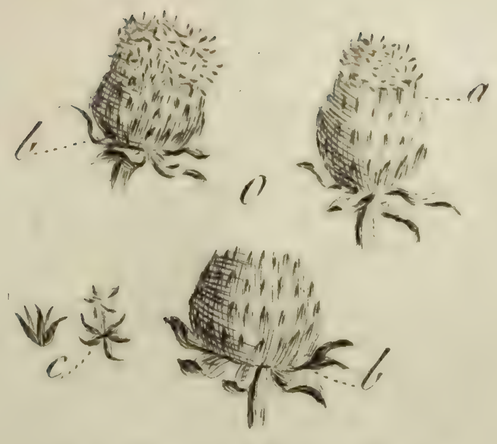
BIRD-WEED. SIGESBECKIA



Generic Character.

Simple leav'd Bird weed.

Alated Bird weed?



Generic Character.

Heathy Crownwort.

AGGREGATES.

ORDER VII.

Whoſe particular Cup is formed of ſeveral oval hollow'd Leaves.

GENUS I.

CROWNWORT.

STOEBE.

Character of the Genus.

The Head is oval. The general Cup is formed of two ranges of leafy Segments; which are ſoft, wavy, and ſharp pointed. The ſeparate Flowers are tubular, with a ſpreading Rim cut into five ſhort Segments.

Plate 44. 0. *a b.*

Of this Genus we know but one Species.

1. HEATHY CROWNWORT.

Plate 44. Fig. 1.

Character of the Species: Stœbe Æthiopica.

The Leaves are linear, cluſtered together on the Stalk, and drooping at their Points.

Fig. 1. *a b.*

THIS is a Perennial, native of the Cape of Good Hope; a very odd looking Plant, but of no great beauty; flowering in July and Auguſt. It grows to two Feet and a half in heighth; the main Stem is brown and woody; the young Shoots are of a greyiſh white; the Leaves are of a pale grey alſo, with ſcarce any tinge of green. The Flowers are yellow. They are not very conſpicuous; for neither they nor the Heads are large, but when cloſely examined they are ſeen very prettily diſpoſed: they cover the exterior part of the Head in little yellow ſhining ſtars, which are every where intermixed with ſmall ſilvery ſcales. Theſe are only little Films from the receptacle, ſuch as may be found in moſt of the Aggregate Claſs, ſeparating Flower from Flower; but in theſe Plants, their large ſize and ſilvery appearance, makes them more obſervable. Let none wonder they are not named in the character of the Genus; a Plant may be a true Stœbe without them; and in other inſtances, their variations are ſo great, and their preſence, or abſence of ſo little import, that they have no proper place in ſuch characters: for the ſhorter theſe are, ſo they be perfectly diſtinct, the better.

GENUS

GENUS II.

THREADWORT.

BRUNIA.

Character of the Genus.

The Head is convex; the general Cup is hemiſpheric, and compoſed of a great number of oval pointed Scales in many ranges. The ſeparate Flowers are formed of five Petals, narrow at the Baſe, and ſpreading at the Rim.

Plate 45. o. *a b c.*

1. JOINTED THREADWORT.

Plate 45. Fig. 1.

Character of the Species. Brunia Nodiflora.

The Leaves grow in fours, ſurrounding the Stalk, and forming the appearance of a kind of Joints.

Fig. 1. *a b.*

THIS is a Perennial, native of the Cape of Good Hope; a very beautiful, though low Plant, flowering in June and July. It grows to more than two feet in heighth; but the Stem is weak, though woody at the baſe, and uſually leans for ſome part of its length upon the ground. It is brown or reddiſh in that part, but elſewhere pale and greeniſh. The Leaves are of a very ſtrong and fine green; the Flowers are of a fine, though pale crimſon, abundantly making up in the elegance of colour what is wanting in its ſtrength.

2. DOWNY THREADWORT.

Plate 45. Fig. 2.

Character of the Species. Brunia Lanuginoſa.

The Leaves are linear; and ſpread away from the Stem.

Fig. 2. *a b.*

THIS is alſo a Perennial, native of the Cape of Good Hope; a weak, but woody Plant, of two feet high; flowering in Auguſt. The Stem is tinged with crimſon; the young Shoots are white and downy. The Leaves are of a whitiſh green; and covered lightly with the ſame white Down. The Flowers are of a ſtrong and glowing crimſon. They are ſo numerous, that they give a wonderful grace and beauty to the Plant above its fellows. It naturally ſpreads out into a number of Branches toward the top, all covered with bloom; and theſe joining give the appearance of a vaſt crimſon Umbell.

3. EYELASH'D

THREAD-WORT. BRUNIA

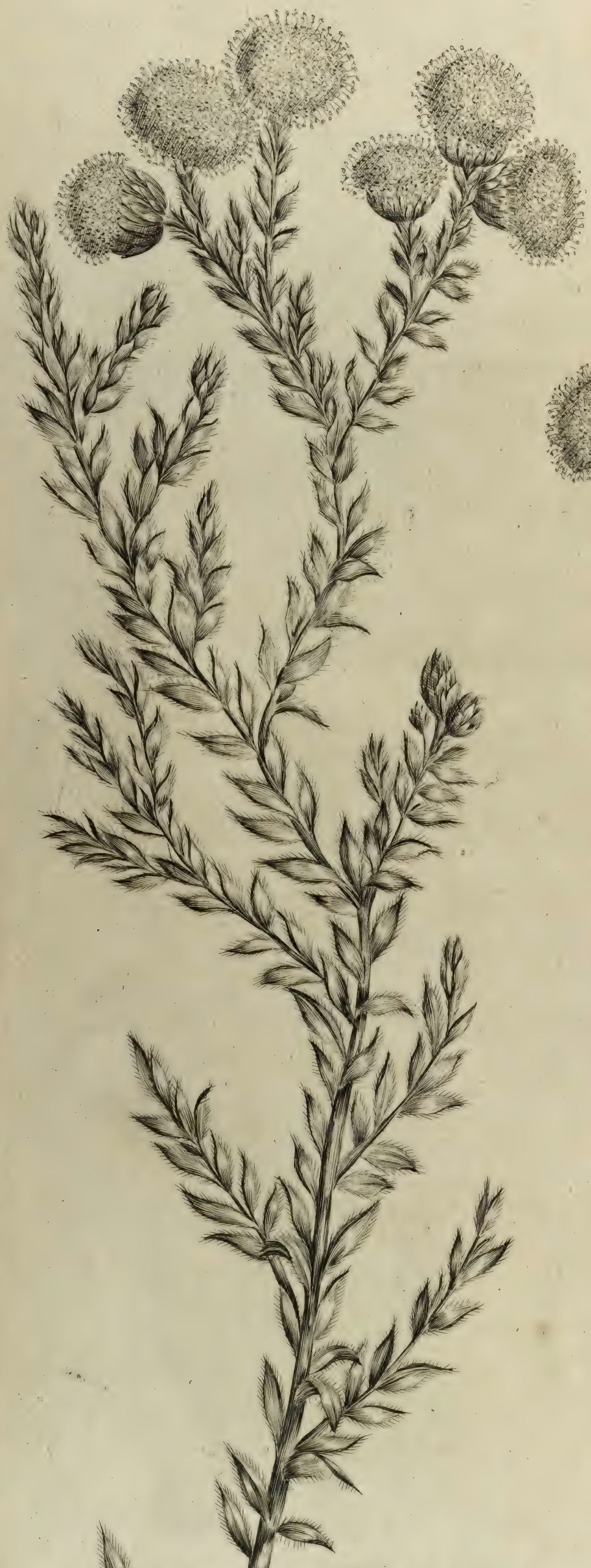
Generic Character.

Jointed Thread-wort?

Downy Thread-wort?

THREAD-WORT. BRUNIA

2



Eyelash'd Thread-wort.

Scaly Thread-wort?

3. EYELASH'D THREADWORT.

Plate 46. Fig. 1.

Character of the Species. Brunia Ciliata.

The Leaves are lanc'd, and have a range of ſtiff and firm Hairs, like thoſe of the Eyelaſhes, ſurrounding them upon the edge.

Fig. 1. *a b.*

THIS is a Perennial, woody Plant, native of the ſides of hills about the Cape of Good Hope, which it in a manner covers in ſome places for many acres together, as heath does our Commons, and ſpreads over them for many months a continual glow of fleſhy crimſon. The Stem is brown and tough, and uſually lies upon the ſlanting ground for the greateſt part of its length. The young Shoots are tender, and of a pale green; and theſe riſe a foot and a half or more from the ground. The Leaves are of a bright, but pale green; and the Flowers are of the fainteſt crimſon that can be conceived; but this is a very pretty colour: it is neareſt what our gardeners call the Maiden's Bluſh in certain Roſes and other Flowers, of any thing in Europe; but it is truly altogether ſingular; and the Flowers have a colour as well as form perfectly unknown to us here. It flowers in July and Auguſt.

4. SCALY THREADWORT.

Plate 46. Fig. 2.

Character of the Species. Brunia Abrotanoides.

The Leaves are lanc'd; and they cover the Stalk like ſcales of fiſhes.

Fig. 2. *a b.*

THIS is alſo a Perennial, woody Plant, native of the Cape; and of very ſingular beauty. The Stem is brown; the Branches are crimſon; but they are in moſt places ſo covered with Leaves, that it is ſcarcely ſeen; theſe are of a dead whitiſh green. The Heads are larger than in any other of this Genus; and the Flowers are blue; their colour, like that of the former, is ſcarce to be deſcribed; and is ſo unlike all that we uſually ſee under that name in the Flowers of Plants, that the firſt ſight of it aſtoniſhes and confounds one. It is a very pale blue, and ſeems throughout ſuffuſed with white; but there is a delicacy in its paleneſs, quite different from all we are acquainted with, except among the Gemms; for there are certain pale ſapphires like it; but theſe muſt be yet paler and brighter to anſwer the reſemblance, than thoſe mentioned on a former like occaſion. It flowers in its native ſoil the greateſt part of the year; with us in Auguſt.

5. WOOLLY THREADWORT.

Plate 47.

Character of the Species. Brunia Leviſana.

The Leaves are oval and obtuſe; and they are covered with an exceeding fine ſhort woolly matter.

Plate 47. *a.*

THIS is a Perennial, woody Plant, as the four preceding, native of the ſame place, and, like them, of very great beauty. We admire many things from the Cape of Good Hope; but ſcarce any deſerve that admiration more than theſe. The Stem of this is uſually brown, with a tinge of crimſon. It lies upon the ground in part; and what riſes up ſeldom exceeds a foot and a half in heighth. The Branches are innumerable; they are crimſon, but it is a colour rarely ſeen, the Leaves cover them ſo entirely; they ſpread widely and wildly toward the top, and one Plant will thus afford a crown of three feet ſquare, ſet looſely and irregularly, but very beautifully, with vaſt Heads of Flowers. The Leaves are white, and ſoft to the touch; the downy matter with which they are covered, is more ſenſible to feeling than to ſight. The Flowers are of a very fine, but light crimſon.

ABOUT three years ago, I received from the Cape, a Branch of this with the Leaves perfectly ſmooth, deſtitute altogether of that downy matter I had before ſeen upon them, but in all reſpects elſe perfectly the ſame. It is an accident not peculiar to this Plant, but has been ſeen on many of the Cape products; Burman alſo mentions it on this occaſion. Let the ſtudent who has opportunity of obtaining Plants from that part of the world, be upon his guard, not be deceived by it; he may fancy many ſpecies, where there is but one, merely from this variety.

GENUS

Woolly Thread-wort?

Tab. 5.

ERYNGO. ERYNGIUM

Generic Character.

Trifid Eryngo.

GENUS III.

ERYNGO.

ERYNGIUM.

Character of the Genus.

The Head is oval, compact, and formed of many Flowers. The general Cup is longer than the Flowers; and is compoſed of ſix thorny Leaves. The ſeparate Flowers are compoſed each of five oblong Petals, turning back at the end.

Plate 48. O. *a b.*

1. TRIFID ERYNGO.

Plate 48. Fig. 1.

COMMON ERYNGO.

Character of the Species.

Eryngium Campeſtre.

The firſt Leaves from the Root are oval and undivided; only wav'd at the edge; the reſt are pinnatifid, and terminate in three points.

Fig. 1. *a b.*

THIS is a Perennial, native of our way ſides in ſome parts of England; and to the diſtreſs of farmers, alſo of our corn-fields; where, when once in poſſeſſion, it is very hardly got out, for the Roots are very difficultly broken, and every piece will grow. The Plant is near a yard high, and branches into a multitude of ſpreading twigs; theſe are of a pale green. The Leaves are very handſomely cut; and what forms the trifid end of them, is no more than the two extream ſide Segments, growing to that at the end. Their colour is a pale yellowiſh green, faint but not diſagreeable. The Flowers are blue, but it is not a fine or pleaſing colour; and ſometimes they become of the mere colour of the Leaves, a yellowiſh green. They blow from June to September.

THIS is the Plant whoſe Roots are celebrated in medicine, and they deſerve all the praiſe that has been given them. They are excellent in all diſorders ariſing from obſtruction: I have ſeen the jaundice cured by them alone; and in the gravel they are ſafe and excellent; as alſo againſt aſthmas, and other diſorders of the breaſt and lungs; but they trifle who eat them candy'd for this purpoſe; the virtue is loſt in the preparation.

IT has been a cuſtom to range the Eryngium among the Umbelliferous Plants. Our reaſon for placing it among the Aggregates, needs no other authority than the view of the Head, or the compariſon of its Figure here, with thoſe of Scabious and Dipſacus, the avowed Heads of the Aggregate Claſs.

2. FOLDED

2. FOLDED ERYNGO.

Plate 49. Fig. 1.

SEA HOLLY.

Character of the Species. Eryngium Maritimum.

The Leaves are wav'd, and thorny at the edges; the lower ones are roundiſh, and elegantly plaited in regular folds.

Fig. 1. *a b.*

THIS is a Perennial, native of our ſea-coaſts in moſt parts of the iſland; and like the preceding kind, common alſo to almoſt every part of Europe. It is a robuſt Plant, of a foot and a half high; and flowers in June. The Stalk is round, thick, firm, and hard. It is reddiſh toward the baſe, but of a blueiſh green upwards; the Leaves are alſo of a blueiſh green, but with blackiſh thorns; and they are thick and fleſhy. The Flowers are of a pale blue, not much differing from the colour of the reſt of the Plant, but more bright and ſhining.

THE Root of this ſpecies has the ſame virtues with that of the preceding, but in an inferior degree. The antients eat the tender Leaves of both, as they did of the Burdock, and many of the Thiſtles.

3. FLAT ERYNGO.

Plate 49. Fig. 2.

Character of the Species. Eryngium Planum.

The radical Leaves are all ſimple, flat, lightly wav'd or nick'd at the edges, and have hollow Footſtalks. The Heads are plac'd on Footſtalks.

Fig. 2. *a b.*

THIS is a Perennial, native of Swiſſerland, and moſt other parts of Europe; a tall, handſome Plant, of regular growth and ſingularly pleaſing appearance; flowering in July and Auguſt. The Stalk is a yard high; tough and firm; very gloſſy on the ſurface; naturally of a faint and ſimple green, but ſometimes of a ſhining blue, and ſometimes of a ſhining white; in either of which ſtates it is very beautiful. It riſes ſingle from the ground; but ſpreads into a large, though compact head; its growth from the firſt Flower being what we have called Proliferous, with a Footſtalk, as in moſt other of the Eryngos, The Leaves are as the Stalks in colour, pale green, blueiſh or whitiſh; and ſo it is with the Flowers: they are fineſt of all when blue. Theſe variations in colour are very ſtriking at firſt ſight; but the Plant is perfectly and entirely the ſame in all. They have done idly who gave the ſeveral appearances names; Eryngium planum viride; planum cæruleum; planum album; for there is not the leaſt difference elſe in the ſeveral Plants.

4. SWORD-

ERYNGO ERYNGIUM

Folded Eryngo.

Flat Eryngo.

ERYNGO. ERINGIUM

3

Sword leav'd Eryngo.

Needle Eryngo.

4. SWORD LEAV'D ERYNGO.

Plate 50. Fig. 1.

Character of the Species. Eryngium Fœtidum.

The Leaves are oblong, ſword-ſhap'd, ſaw'd and thorny. Thoſe on the lower part of the Plant are ſimple; thoſe toward the top divided.

Fig. 1. *a b.*

THIS is a Perennial, native of North and South America, common to Canada and Jamaica, to Penſylvania and Peru. We are accuſtomed to receive it from Jamaica, and have therefore placed it in ſtoves; but the Plant will live and thrive in open ground. It grows to a foot and a half high. The Stalk is weak, but tough; of a reddiſh green toward the baſe, and pale upwards. The Leaves are alſo of a pale green; and when bruiſed have an unpleaſing ſcent. The Flowers are ſmall and white.

IT is worth while to raiſe this Plant in quantity to try its virtues. The Indians, who have taught us more and better medicines, than we ever taught ourſelves, call it by a name that expreſſes Fever Plant: our people in the colonies have learnt its uſe from them, and extol it highly; but I don't know that it has ever been try'd in England.

5 NEEDLE ERYNGO.

Plate 50. Fig. 2.

Character of the Species. Eryngium Aquaticum.

The Leaves are lanc'd, ſerrated, and terminate in a ſtrong and ſlender Spine, like a needle. They retain their undivided form to the top.

Fig. 2. *a b.*

THIS is a Perennial, native of Virginia, and other parts of North America; an upright, but not very beautiful Plant; flowering in July. The Stalk riſes to near two feet in heighth, and is tough, firm, ſmooth, and pale. The Leaves are of a greyiſh green; and have a thick fleſhy ſubſtance. The Flowers are white.

THIS is another of the Plants famous among the natives of America for its medicinal qualities. They call it by a name which ſignifies Rattle-Snake Weed. There are ſeveral Plants which they ſuppoſe to have the virtue of curing thoſe who are bitten by venemous ſerpents, and this is one, and not the leaſt reſpected among them. It is not ſtrange their firſt phyſic ſhould be for the cure of bites of venomous creatures: their life in the woods made them always liable to thoſe accidents.

6. PALMATED ERYNGO.

Plate 51. Fig. 1.

Eryngium Tricuſpidatum.

Character of the Species.

The radical Leaves are heart-ſhap'd; and wav'd along the edges. Thoſe on the Stalk are palmated and curl'd.

Fig. 1. *a b.*

THIS is a Perennial, native of North America; a tall and handſome Plant, flowering in Auguſt. The Stalk is two feet and a half high, firm, tough, upright, and, toward the top, ſpreads out into a great many Branches. It is of a pale, greyiſh green, and ſmooth on the ſurface, naturally ſhining. The Leaves are of a pale, greyiſh green, with ſome little tinge of yellowiſh; the Flowers are nearly white.

THOSE who ſearch for marks of diſtinction among the more minute and inconſpicuous, or at leaſt unobvious parts of Plants, may find one in the Head of this Eryngo; by which, if they pleaſe, they may ſeparate it from the reſt, and make of it a new Genus. The Heads of all the Plants of this kind, have a kind of chaffy Films placed between the Flowers. Thoſe in the generality are ſimple, but in this Species they terminate in three points.

IT is not of any importance to the Plant, or to its generic Character, whether there were any of theſe Chaffs or not among the Flowers, as has been obſerved in ſpeaking of the Stœbe: much leſs need we in that character regard their form. I do not know that any has yet ſeparated this from the Eryngo's on that occaſion; for the Plant is little known: I only name the impropriety of ſuch ſeparations, of which we have inſtances on leſs cauſes even than this; and would have the ſtudent keep always in mind, that little regard is to be ſhewn to little parts; and that, when other things are equal, the moſt conſpicuous marks are always beſt.

7. FORKED

Palmated Eryngo.

ERYNGO. ERYNGIUM

5

Fork'd Eryngo.

Tender Eryngo.

7. FORKED ERYNGO.

Plate 52. Fig. 1.

Character of the Species. Eryngium Pusillum.

The Stalk splits forkwise into two at the Head; the Leaves are lanc'd and serrated.

Fig. 1. *a b c.*

THIS is a Perennial, native of Spain and Italy; a low Plant, of no great beauty; flowering in July and August. The Stalk is round, tough, of a pale green; and lies in part upon the ground. It seldom grows to more than a foot in heighth; and its colour is a pale whitish green. The Leaves are of a bright and pleasing green. The Flowers are of a blueish white; they are not large; but they sit so close upon the Stalk, that their singularity gives them an aspect of prettiness, which generally makes the Plant taken notice of among such as are handsomer.

8. TENDER ERYNGO.

Plate 52. Fig. 2.

Character of the Species. Eryngium Alpinum.

The Stalks are weak; the lower Leaves are heart-shap'd, and saw'd at the edge; the others are pinnatifid with a broad base.

Fig. 2. *a b c.*

THIS is a Perennial, native of the mountains of Swisserland, and of some other parts of Europe; a very pretty Plant, of a foot and a half or more in heighth; flowering in July. The Stalk is tough, but weak. It naturally bends, but does not easily break; the Leaves are of a faint green; the upper ones are of a firm substance, and are thorny at the ends and points of the divisions. The Flowers are of a very fine blue, and make a handsome figure at the tops of the Branches, part of which is usually ting'd to some distance below them, with the same glowing colour.

THE Root of this kind, when dry'd, has a very fine aromatic flavour, light and without heat. It resembles the taste of the common Eryngo Root, but is vastly more delicate. The Plant is common enough where it is native; and it would be worth while to import a quantity of its Root for trial in medicine.

9. AMETHYSTINE ERYNGO.

Plate 53. Fig. 1.

Character of the Species. Eryngium Amethyſtinum.

The lower leaves are handed, and in the circumference nearly round; they are compoſed of many plaited and thorned diviſions.

Fig. 1. *a b.*

THIS is a Perennial, native of the Apennines; an upright, robuſt, and very beautiful Plant, of two feet high; flowering in June and July. The firſt or lower Leaves, are of a very fine, though pale green, with white ribs, hard, ſolid, and gloſſy; and have often a blotchy mixture of a deeper green, ſo that they have a variegated aſpect. The Stalk is upright, thick, tough, and firm; it riſes ſingle, and does not branch much, till near the top; where it throws out a great many Shoots, which form together a thick and large Head. Theſe Branches, and a part, if not the whole of the Stem, for this depends on accidents, are of the moſt delicate colour that can be imagined. It is blue with a mixture of purple; a tinct too glowing, and too fine to be deſcribed, otherwiſe than by the alluſion to that Gem from which the Plant takes its name; for it is of the hue and luſtre of the moſt perfect Amethyſts. In its native place, the Plant is always coloured thus in the Stalk to the ground; with us, where too rich a ſoil gives it more heighth and largeneſs, the lower part is white; and where this is the caſe, the colour of the top is not ſo glowing. When this glow is perfect, it is a Plant to be ſeen and admired from a diſtance; and more ſo, every ſtep that one advances to it. The Flowers are of a fine blue, with ſomewhat of the amethyſtine tinge; but their colour is not nearly ſo bright as that of the Stalk.

FINIS.

6

Amethystine Eryngo.

Vol. 5.

LE MIS. DE COURTANVAUX

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